

GAATAGCCCCCTTCACTTCTGAGTCCCTGCATGTGGGGGCTGAAGAAGGAAGCCAGAAGCCTCCTAGCCTCGCCTCCA
 CGTTTGTGTAATACCAAGCTGCAGGCGAGCTGCCGGGCGCTTTCTCTCTCCAATTTCAGAGTAGACAAACACGGGGAT
 TTCTTTCCAGGGTAGGGAGGGGCGGGCCGGGGTCCCAACTCGCACTCAAGTCTTCGCTGCCATGGGGGCGTCAATGG
 GCACCTTCTCATCTCTGCAACCAAAACAAAGGCGACCTCGAAAGATAAGATTGAGATGAGCTGGAGATGACCATGGTT
 TSCCATCGGCCGAGGGACTGGAGCAGCTCGAGGCCAGACCAACTCACCAAGAGGAGCTGCAGGTCTCTTATCGAGG
 CTTCAAAAATGAGTGGCCCCAGTGGTGTGGTCAACGAAGACACATTCAAGCAGATCTATGCTCAGTTTTCTCATGGAG
 ATGCCAGCAGCTATGCCCCATTACCTCTTCAATGCCCTGACACCACTCAGACAGGCTCCGTTGAGTTTCGAGGACTTTGTA
 ACCGCTCTGTCGATTTATTGAGAGGAAGTCCACGAGAACTAAGGTGGACATTTAATTGATGACATCAACAAGGA
 CGGATACATAAACAAGAGGAGATGATGGACATTGTCAAAGCCATCTATGACATGATGGGGAATACACATATCCTGTGC
 TCAAAGAGGACACTCCAGGCGAGCATGTGGACGCTCTTCTCCAGAAAAATGGACAAAAATAAGATGGCATCGTAACCTTTA
 GATGAATTTCTTGAATCATGTCAGGAGGACGACAACATCATGAGGTCTCTCCAGCTGTTTCAAAATGTATGTAACCTGGT
 GACACTCAGCCATTTCAGCTCTCAGAGACATTGTACTAAACAACCACTTAACACCTGATCGCCCTTCTTCTGATTTTA
 CACACCACTCTTGGGACAGAAACACCTTTTACACTTTGGAAGAATTCTCTGCTGAAGATTTCTTATGGAAACGAGCAT
 CATGTGGCTCAGTCTCTGATTGGCAACTCTTCTCTTCTTCTTCTGAGAGAGACAAGATGAAATTTGAGTTTGTGTTT
 GAAGCATGCTCATCTCTCAGACTGCTGCCCTATGGAAGGTCCTCTGCTTAAGCTTAACAGTAGTGCAACAAATATGC
 TGCTTACGTGCCGCCAGGCCACTGCTCCCAAGTCAGGCGAGACCTTGGTGAATCTGGAAGCAAGAGGACCTGAGCCAGATG
 CACACCATCTCTGATGGGCTCCCAACCAATGTGCTGTTTCTCTCTTGGTGGGAAGATCAGAGTTATCCAGAACA
 ATTAGGATCTGTGATGACCAAGATTGGGAGAGCAGCACCTAACATATGTGGGATAGGACTGAATTTAAGCATGACATT
 GTCTGATGACCAACTGCCCG

HUMAN IV PROTEIN

MGAVMGTSSSLQKRRPSKDKIEDELEMTMVCIRPEGLEQLEAQTNFKRELQVLYRGFKNECPGVVYEDTFKQIYAQ
 FPHGDASTYAHYLFNAFDTTQTGSVKFEDFVTALSILLRGTVIEKLWTFNLYDINKDGYINKEEMDIVKAIYDMGK
 YTYPVLKEDTPRQHVVDVTFQKMDKNKDGIVTLDEFLESCQEDDNIMRSLQLFQNVN

FIGURE 1

RAT 1vN (r1vN) DNA (CD: 339-1037)

GGCACACAACCCCTGGATTCTTCGGAGAATATGCCGTGAGGTGTTGCCAATTATTAGTTCTCTTGCGCTAGCAGATGTTTA
GGGACTGGTtaaGCCTTTGGAGAAATTACCTTAGGAAAACGGGGAATAAAAGCAAAGATTACCATGAATTGCAAGATTA
CCTAGCAATTGCAAGGtagGAGGAGAGAGGTGGAGGGCGGAGTAGACAGGAGGGAGGGAGAAAGtgaGAGGAAGCTAGGC
TGGTGGAATAACCTGCACCTTGGAACAGCGGCAAGAAGCGCGATTTTCAGCTTaaATGCCTGCCCGCGTTCTGCTTC
GCCTACCCGGGAACGGAGATGTTGACCCAGGGCGAGCTGAAGGGCTCCAGACCTTGGGATAGTAGTGGTCTGTGTTT
CTCTCTGAAACTACTGCACCTACCTCGGGCTGATTGACTTGTGCGATGACAAGATCGAGGATGATCTGGAGATGACCATGG
TTTGCCATCGGCTGAGGAGCTGGAGCAGCTTGAGGCACAGACGAACTTACCAGAGAGAAGTGCAGTCTCTTACCGG
GGATTCAAAACAGTGCCTCCCGATGGTGTGGTTAACGAAGAGACATTCAAGCAGATCTACGCTCAGTTTTCTCCATCGG
AGATGCCAGCAGATACGCACATTACCTCTTCAATGCCCTTCGACACCCAGAGCGCTCTGTAAGTTGAGGAGCTTTG
TGACTGCTCTGTGATTTTACTGAGAGGAACGGTCCATGAAAAACTGAGGTGGACGTTTAATTTGTACGACATCAATAAA
GACGGCTACATAAAAGAGGAGATGATGGACATAGTGAAGCCATCTATGACATGATGGGAAATACACCTATCCTGT
GCTCAAGAGGAGCACTCCAGGCGAGCAGTGGACGTCTTCTCCAGAAJATGGATAAAAAATAAGATGGCATTTGTAACGT
TAGACGAATTTCTCGAGTCTGTGAGGAGATGACAACATCATGAGGTCTCTACAGCTGTTCCAAAATGTCTGTAACGT
AGGACACTGGCCATCTGCTCTCAGAGACACTGACAAACACCTCAATGCCCTGATGTCCTGTTCCAGTTTACACAT
CAACTCTCGGACAGAAATACCTTTTACACTTTGGAAGAATTCTCTGCTGAAGACTTTCTACAAAACCTGGCAGCGAGTG
GCTCAGTCTCTGATTGGCAACTCTTCTCCCTCTCTCTGAGAGGACGAGCTGAAATCCGAAGTTTGTTTTGAAGC
ATGCCCATCTCTCCATGTCTGCTGCTGCCCTGTGGAAGGCCCTCTGCTTGAAGCTTAAACAGTAGTGCACAGTTTCTGCG
TATACAGATCCCCAATCACTGCCTCTAAGTCAGGCAGACCTGATCAATCTGAACCAAATGTGCACCATCCTCCGATGG
CCTCCCAAGCCAATGTGCTGCTTCTTCTCTGCTGSGAAGAAAGAACGCTCTACAGAGCACTTAGAGCTTACCATGA
AAATACTGGGAGAGGCAGCACCTAACACATGTAGAATAGGACTGAATTATTAAAGCATGTGTATCAGATGATGCAACA
GCCCATGTCATTTTTTTTTCCAGAGGTAGGACTAATAATTTCTCCACACTAGCACCTACGATCATAGAACAAGTCTTTT
AACACATCCAGGAGGAAACCGCTGCCAGTGGTCTATCCCTTCTCTCATCCCTGCTCAAGCCAGCACTGATGTCT
CTCCCGAAGGTCCAGAAATGCCTGTGAAATGCTGTAACTTTTATACCCTGTTATAATCAATAACAGAACTATTTCGTAC
AAAAAAAAAAAAAAAA

FIGURE 2

RAT 1vN (r1vN) PROTEIN

MLTQGESEGLQTLGI VVLCSSLKLLHYLGLIDLSDDKIEDDLEMTMVCHRPEGLEQLEAQTNFTKRELQVLYRGFKNEC
PSGVVNEETFKQIYAQFFPHGDASTYAHYLFNAFDTTQTGSKVFEDFVTALSILLRGTVHEKLRWTFNLYDINKDGYINK
EEMMDIVKAIYDMMGKYTPVLKEDTFRQHVDVFFQKMDKNKDGIVTLDEFLESCQEDDNIMRSLQLFQNVN.

FIGURE 2 (cont'd)

MOUSE IV (CD: 477-1127)
 CGGCCCTTGAGATCCAGCCGAGCGCGGGCGGAGCGGCCGGTGGCAGCAGGGCGCGGGCGGGAGCGCAGCTCCG
 CACCGCAGCGCGCGGGCTCGGCCAGCTCGGCCGTGCGGGCAGCGCGGCCGTGTCTCAACATCAGGAGGCTTTGGGG
 CTGCGGGCTCGGGCTCGGAGAAAGCAGTGGCCCGCTGGGTGCCGACCGGGGGCGCTGTCTAGGCTCCCGCGAGC
 CTCTGGCCCTGGGAGTCAGTGCATGTGCTGGCTGAAGAAAGCAGCAGCCAGAGCTCAGGGCGCCCGGCCACGTTT
 TCTGAAATACCAAGCTGCAGGCGAGCTGCTGGGGCTTTTTTGTCTTCTCGCTTTTCTCTCTCCAAATCAAAAGTGGGA
 ATCCACACCGATTCTTTTCAGGGGAGGGAAGAGACAGGGCTGGGGTCCCAAGACGACACAAAGTCTCGCTGCCATGG
 GGGCGCATGCGGCATCTTCTCTCTCGAGACCAAAAGGCGACCTCTAAAGACAAAGATTGAGGATGAGCTAGAG
 ATGACCATGGTTTGCACCGGCTGAGGGAGCTGGAGCAGCTTGAGGCACAGACGAACTTCAACAGAGAGAACTGCAAT
 CTGTGACCGGGGATTCAAAAAGAGTGCCCTAGCGGTGTGGTCAATGAAGAAACATTCAGCGAGATCAGCTCAGTTTT
 TCCTCTCAGGAGATGCCAGACAATATGACATTACCTCTTCAATGCTTCGACACACCGCCAGCAGCGCTCTGTAAAGTTC
 GAGGACTTGTGACTGCTCTGTCGATTTTACTGAGAGGGACAGTCCATGAAAACTAAGGTGAGCGTTAATTTGTATGA
 CATCAATAAAGACGGCTACATAAACAAGAGGAGATGATGGACATAGTCAAGGCCATCTATGACATGATGGGAAATACA
 CCTATCCTGTGCTCAAAAGAGGACACTCCAGGACGATGTGGATGTCTTCTCCAGAAAAATGATAAAAAATAAGATGGC
 ATTGTAACTGTAGATGAATTTCTTGAATCATGTCAGGAGGATGACAACTCATGAGATCTCTACAGCTGTCCAAAAATGT
 CATGTAACTGAGGACACTGGCCATTCTGCTCTAGAGACACTGACAAACACCTTAATGCTCTGATCTGCCCTGTGTCCAA
 TTTTACACACCAACTCTTGGGACAGAAATACCTTTTACACTTTGGAAAGAAATCTCTGCTGAAGACTTTCTACAAAACTG
 GCACCAGCTGGCTGTGCTCTGAGGGGACGAGCGGAGATCCGACTTTTGTGGAGCATGCCATCTCTTCTATGCTGCTG
 CCTGTGGAAGGCCCTCTGCTGAGCTTAATCAATAGTGACAGTTTTATGCTTACACATATCCCCAACTCACTGCTC
 CAAGTCAGGCGAGCTCTGATGAATCTGAGCCAAATGTGACCATCTCCGATGGCTCCCAAGCCAAATGTGCTGCTTCT
 CTTCCTCTGTTGGGAAAGAAAGATGTCTACGGAACAATAGAGCTTACCATGAAAAATTTGGGAGAGGCGAGCACTAAC
 ACATGTAGAATAGGACGAATTTATTAAGCATGGTGATATCAGATGATGCAATGGCCATGTGATTTTTTCAAGAGTAG
 GGCAGAAATGATTCTCCACATAGCACCTGTGGTCATAGAGCAAGTCTCTTAACATGCCCAAGAGGGGAACCACTGTCCA
 GTGGTCTATCCCTCTCTCCATCCCTGCTCAAAACCGACACTGCATGTCCCTCCAAAGAGGTCCAGAACTGCTGCGAAA
 CGCTGTACTTTTATACCTGTCTCAATCAATAAACAGAACTATTTCTGTAACAAAAAAAAAAAAAAAAAAAA

MOUSE IV PROTEIN
 MGAVMGTGSSSLQTKQRRPSKDKJEDELEMTMVCIRPEGLEQLEAQTNFTKRELQVLYRGFKNECPGVSVEETFKQIYAO
 FPPHGDASTYAHYLFNAFDTTQTGSKVFEDFTALISLLRGTVHEKLRWTFNLVDINKDGYINKKEEMMDIVKAIYDMMGK
 YTYPVLKEDTPRQHVDFVFKMDKNKDGIVTLDEFLESCQEDDNNIMSLQLFQNVN

FIGURE 3

RAT IVL DNA (CD: 31-714)

GTCCCAAGTCGCACACAAGTCTTCGCTGCCATGGGGCCGTCATGGGTACCTTCTGTCCTCGACACCAACAAAGGCG
 ACCCTCTAAAGACATCGCTGGTGGTAATTACAGTATCAGAGAGACAAGATCGAGGATGATCTGGAGATGACCATGGTTT
 GCCATCGGCTGAGGGACTGGAGCAGCTTGAGGCACAGACGAACTTCACCAAGAGAGAACTGCAAGTCTTTACCGGGGA
 TTCAAAAACGAGTGGCCCAAGTGGTGGTTAACGAAAGAGACATTCACGAGATCTACGCTCAGTTTTCCTCATGGAGA
 TGCCAGCACATACGCACATTACCTCTTCAATGCCCTCGACACCAACCCAGACAGGCTCTGTAAGTTCGAGGACTTGTGA
 CTGCTCTGTCGATTTTACGTAGAGGAACGGTCCATGAAAACTGAGGTGGAGCTTTAATTTGTACGACATCAATAAGAC
 GGCATACATAAACAAAGAGGATGATGGACATAGTGAAGCCATCTATGACATGATGGGGAATACACCTATCTGTGCT
 CAAAGAGGACACTCCCAAGCAGCAGTGGACGTCTCTTCCAGAAAAATGGATAAAAAATAAGATGGCAATTGTAACGTTAG
 ACGAATTTCTCGAGTCTGTGACGAGGATGACAAACATCATGAGGTCTCTACAGCTGTTCCTCAAAATGTCACTGTAAGT
 ACACCTGGCCATCTGCTCTCAGAGACACTGACAAACACCTCAATGCCCTGATCTGCCCTTGTTCAGTTCACACATCAA
 CTCTCGGACAGAAAACTCTTTACACTTGGGAAGAAATCTCTGCTGAAGACTTCTACAAAACTGGCACCCTGGCT
 CAGTCTCTGATTGCCAATCTCTCCTCTCTCTCTTGGAGGGACGAGCTGAAATCCGAAGTTTGTGGAGCATG
 CCCATCTCTCATGCTGCTGCTGCCCTGTGGAAGGCCCTCTGCTTGAGCTTAAACAGTAGTGACAGATTTTCTGCGTAT
 ACAGATCCCCAACTCACTGCTCTAAGTCAAGCAGACCTGATCAATCTGAACCAAAATGTGACCACTCTCCGATGGCT
 CCCAAGCAATGTGCTGCTCTCTCTCTGTTGGGAAAGAAAGACGCTCTACAGACACTTAGAGCTTACCATGAAAA
 TACTGGGAGAGGCAGCAGCTAACACATGATAGAAATAGGACTGAATTATTAAGCATGGTGGTATCAGATGATGCAACAGCC
 CATGTGATTTTTTCCAGAGTAGGACTAATAATTCTCCACACTAGCACCTACGATCATAGAACAGTCTTTAACA
 CATCCAGGAGGGAACCGCTGCCAGTGGTCTATCCCTCTCTCATCCCCGCTCAAGCCAGCATGATGCTCTCC
 CGGAAGGTCCAGAAATGCTGTGAATGCTGTAACCTTTATACCTGTTATATCAATAAACAGAACTATTCGTACAAAA
 AAAAAAAAAAAAAA

RAT IVL PROTEIN

MGAVMGTFFSLQTKRRPSKDIAWWWYQYQRDKIEDLEMTMVCHRPEGLEQEAQNTFKRELQVLYRGFKNECPGSVV
 NEETFQIYAQFFPHGDASTYAHYLFNAFDTTQTGSVKFEDFVTALSIILLRGTVHEKLWTFNLVDINKDGYINKKEEMMD
 IVKAJYDMMGKYTPVFLKEDTPRQHVDFVQKMDKNKGIVTLDEFLESCQEDDNIMRSLQLFQNVN

FIGURE 4

MOUSE 1VL DNA (CD: 77-760)
 ATCCACACCGATTTCCTTCAGGGGAGGGAAGAGACAGGGCTGGGTCCTCCCAAGACGCACACAAGTCTTCGTCCTATGG
 GGGCCGTGATGGGCATCTTCTCTCCCTGCAGACCAAAACAAGCCGACCTCTAAAGACATCGCTGGTGGTATTACAG
 TATCAGAGAGACAAGATTGAGGATGAGCTAGAGATGACCATGGTTTGCCACCGGCTGAGGAGCTGAGCAGCTTGAGGC
 ACCAGACCACTTCCAAAGAGAGAAALGCAAGTCTGATCCGAGATCAAAAACGAGTGCCTTAGAGGTTGTGTCATG
 AAGAAACATTCAGCAGATCTACGCTCAGTTTTTCCCTCAGGAGATGCCAGCAGATATGCACATTACCTCTTCAATGCC
 TTCGACACCAACCCAGACAGGCTCTGAAAGTTCGAGGACTTTGTGACTGCTCTGTGATTTTACTGAGAGGGGACAGTCCA
 TGAAAACTAAGGTGGACGTTTAAATTTGTATGACATCAATAAAGACGGTACATAACAAGAGGAGATGATGGACATAG
 TCAAAAGCATCTATGACATGATGGGAAAATACACCTATCTGTGCTCAAGAGGACACTCCAGGCAGCATGTGGATGTC
 TTCTCCGAGAAAATGGATAAAAAATAAGATGGCATTGTAACGTTAGATGAATTTCTGAATCATGTGAGGAGATGACAA
 CATCATGAGATCTCTACAGCTGTTCACAAATGTGATGTAAGTGGAGACTGGCCATTCTGCTCTCAGAGACACTGACAA
 ACACCTTAATGCCCTGATCTGCCCTGTTCCTCAATTTTACACACCAACTCTTGGGACAGAAATACCTTTTACACTTTGGAA
 GAAATCTCTGCTGAAGACTTTCTACAAAACCTGGCACACGTGGCTCTGTCTGAGGAGCAGCGGAGATCCGACTTTG
 TTTGGAGCATGCCATCTCTTATGCTGCTGCCCTGTGGAGGCCCTCTGCTGAGCTTAATCAATAGTGCACAGTT
 TTATGCTTACACATATCCCCAACTCACTGCCTCCAAAGTCAGGCAGACTCTGATGAATCTGAGCCAAATGTGCACCATCT
 CCGATGGCTCCCAAGCCAATGTGCTGCTCTCTCTCTGGTGGGAAGAAAGAGTGTCTACGGAAACAAATAGAGCTT
 ACCATGAAAAATTTGGGAGAGGCAGCACCTAACACATGTAGAATAGGACTGAATTAATTAAGCATGGTATCAGATGAT
 GCAAAATGCCCATGTCTATTTTTTCAAGGTAGGGAACAATGATTTCTCCACACTAGCACCTGGTCTATAGAGCAAGTC
 TCTTAACATGCCAGAGAGGGAACCACTGTCCAGTGGTCTATCCCTCCTCTCCATCCCTGCTCAAAACCCAGCAGTGCAT
 GTCCCTCCAGAAAGTCCAGAAATGCTGCGAAACGCTGTACTTTATACCTGTTCTAATCAATAAACAGAACTATTTCG
 TACAAAAAAAAAAAAAAAAA

MOUSE 1VL PROTEIN
 MGA VMGTFSLLQTKRBRPSKDIAWVWYQYQRDKJEDELEMTMCHRPGLGLEAQNTFKRELQVLVYRFGKNECPGTV
 NEETFKQIYAFPHGDASTYAHYLFNAFDTTQTGSKVFEFVYALSLRLGTVHEKLRWTFNLYDINKDGYNKFEEMMD
 IVKAIYDMMGKYTPVLKEDTPRQHVDFVFFQKMDKNKDGIVTLDEFLESCQEDDNIMRSLQLFQNVN

FIGURE 5

RAT IVN DNA (FIRST-PASS, PARTIAL; CD: 345-955)

GTCCGGCACACACCCCTGGATTCTTCGGAGAAATATGCCGTGACGGTGTGCCAATTATTAGTCTCTGGCTAGCAGA
 TGTTTAGGGACTGGTTAAGCCTTTGGAGAAATTACCTTAGGAAAAACGGGAAATAAAAGCAAGATTACCATGAATTGCA
 AGATTACCTAGCAATTGCAAGGTAGGAGGAGAGAGGTGGAGGGCGAGTAGACAGGAGGGAGGAGAAAGTAGAGGAAAG
 CTAAGACTGGTGGAAATAACCTGCACCTGGAAACAGCGGCAAAAGAGCGGATTTCCAGCTTTAAATGCTGCCCGCTT
 CTGCTTGCTACCCGGGAACGGAGATGTTGACCCAGGGCGAGTCTGAAGGGCTCCAGACCTTGGGGATAGTAGTGGTCTT
 GTGTTCTCTCTGAAACTACTGCACCTCGGGCTGATTGACTTGTCCGATGACAAGATCAGGATGATCTGGAGATGA
 CCATGTTTGGCATCGGCTGAGGGACTGGAGCAGCTTGAGGCACAGACGAACTTCACCAAGAGAGAAGTCAAGTCTT
 TACCGGGGATTCAAAAACGAGTGGCCAGTGGTGGTTAACGAAGAGACATTCAGCNGATCAGCTCAGTTTTTCCC
 TCATGGAGATGCCAGCACATACGCACATTACCTCTCAATGCCCTTCGACACCAACCCAGACAGGCTCTGTAAAGTTCGAGG
 ACTTTGTGACTGCTCTGTGCTTTTACTGAGAGGAACGGTCCATGAAAACTGAAGTGGACGTTTAATTTGTACGACATC
 AATAAAGACGGCTACATAAACAAAGAGGAGATGATGGACATAGTGAAAGCCATCTATGACATGATGGGAAATACACCTCA
 TCTTGCTCAAGAGGACACTTCCAGGCAGCACGTGGACGTCTTCTCCAGAAAAATGGATAAAAATAAAGATGG

RAT IVN PROTEIN (PARTIAL)

MLTQGESEGLQTLGIIVVLCSSLKLLHYLGLIDLSDDKIEDLEMTMVCHRPEGLEQLAQTNFTKRELQVLYRGFKNEC
 PSGVNVNEETFKXYAQFFPHGDASTYAHYLFNAFDTTQTGSKVFEDFTALSIILRGTVHEKLLWTFNLVDNKDQYNNK
 EEMMDIVKAIYDMMGKYTYLVLKEDTSRQHVDFVFFQKMDKNKD

FIGURE 6

HUMAN 9QL DNA (CD.207-1019)

CTCACCTGCTGCTAGTTTCCCTCTCTGCTCCAGGACCTCCGGGTAGACCTCAGACCCCGGGCCATTCCAGACTCA
 GGCTCAGCCCGGACTTCCCAAGCCCGACAGCACAGTAGGCGCCAGGGGGCCCGGTGTGAGCGCCCTATCCCGGCCACC
 CGCGGCCCTTCCACGGCCCGGGCGGAGCGGGGCGCGGGGGCCATCGGGGCCAGGGGCCG AAGGAGAGTTGTTCG
 ATTCCCGAGACCTGGACGGCTCTACGACCAAGCTCACGGGCCACCTCCAGGGCCCACTAAAAAGCGCTGAAGCAGCGA
 TTCTCAAGCTGCTGCGGTGCTCGGGGCCCAAGCCCTGCTCAGTCAGTGAAACATTAGCGGCCACGCTCCCTCCG
 CCCCCACAGACCCCGCTGCTGGACCCAGACAGCGTGGACGATGAATTTGAATTGTCCACCGTGTGTACCCGGCTGAGG
 GTCTGGAGCAGCTCAGGAGCAAAACAAATTCACGGCAAGGAGTTGCAGGTCTGTACCGGGGCTCAAGAAGCAATGT
 CCCAGCGGAATTTGCAATGAGGAGAATTC AAGCAGATTTACTCCAGTTCTTCTCCTCAAGGAGACTCCAGACCTATGC
 CACTTTTCTTCAATGCCTTTGACACCAACCATGATGGCTCGGTCAAGTTTGAAGACTTTGTGGCTGGTTTTCGCTGA
 TTCTTCGGGAACTGTAGATGACAGGCTTAATTGGGCTTCAACCTGTATGACCTTAACAAGGACGGCTGCATCACCAAG
 GAGGAAATGCTTGACATCATGAAGTCCATCTATGACATGATGGGC AAGTACACGTACCTGCACCTCGGAGGAGGGCCCC
 AAGGQAACACGTGGAGAGCTTCTCCAGAAGATGGACAGAAAAAGGATGGTGTGGTGACCAATTGAGGAATTCATTGAGT
 CTGTGCAAAAGGATGAGAACATCATGAGGTCCATGCAGCTCTTTGACAATGTCATCTAGCCCCCAGGAGAGGGGGTCAGT
 GTTCTCGGGGGACCATGCTCTAACCCTAGTCCAGGCGACCTCACCCCTTCTTCCAGGTGTATCCTCATCTACGCG
 CTCCTCGGGGGCTGAGGGATCCAAAGAGCTTGGGATTCAGTAGTCCAGATCTCTGGAGCTGAAGGGGCCAGAGAGTGGG
 CAGAGTGATCTCGGGGGTGTCCCAACTCCACAGCTCTCACCCCTTCTGCTGCTGACACCCAGTGTGTAGAGTGCC
 CCTCTGTAGGAATTGAGCGGTTCCCACTCCTACCTACTCTAGAAAACACTAGAGCGATGTCTCTGCTATGTTGC
 TTCCCCATCCCTGACCTCATAAACATTTCCCTAAGACTCCCTCTCAGAGAGAAATGCTCCATTCTTGGC ACTGGCTGG
 CTTCTCAGACCAAGCAATTGAGAGCCCTGTGGAGGGGGACAAGATGTATAGGGAGAAATCTTGGGCTGAGTCAATGGA
 TAGGTCTAGAGAGGTGGTGGGGTTGAGAAATAGAGGGGCTGGACAGATTATGATTGCTCAGGCATACCAAGTTATAGCT
 CCAAGTCCACAGGTCTGCTACCTACAGGCCATCAAAATATAAGTTTCCAGGCTTTCAGAGAACCTTGTCTCTTAGAAA
 TGCCCCAGAAATTTCCACACCTCCTCGGTATCCATGGAGAGCTGGGGCCAGATATCTGGCTATCTCTGGCATGTCT
 TCCTCTCTCTCTCTGCTCATGTGTTGGTGGTGGTTGTGGGGGAATGTGGATGGGGGATGCTCGGTGATGCTGC
 CAAAATTCATCCACCTCCTTGCTTATGCTCCCTGTTTGAAGGCTATGACTTGAGTTTGTTCCTCCATGTCTCTA
 TAGACTGGGACCTTCTGAACCTGGGGCTATCACTCCCCACAGTGGATGCTTAGAAGGAGAGGGAAGGAGGAGGC
 AGGCATAGC

FIGURE 7

HUMAN 9QL PROTEIN

MRQQGRKESLSDSRDLDGSYDQLTGHPGPTKKALKQRFLKLLPCCGPQALPSVSETLAAPASLRPHRPRLLDPDSVDDE
FELESTVCIIDPCELEQLQEQTHITRKEIQVLYRGFKINECTSGVYNEENFKQVSGFTTQCDSSTVATLTHAFDTNIDGSSV
SFEDFVAGLSVILRGTVDDRNLNWAFLYDLNKGCTTKEEMLDIMKSIYDMMGKYTYYPALREEAPREHVESFFQKMDRNNK
DGVVTIEEFIESCKDENIMRSMQLFDNVI

FIGURE 7 (cont'd)

RAT 90L DNA (PARTIAL: CD: 2.775)

CCGAGATCTGGACGGCTCTATGACCAAGCTTACGGGCCACCTCCAGGGCCCAGTAAAAAGCCCTGAAGCAGCGTTTC
 TC AAGCTGCTGCGCTGCTGCGGGCCCCAAGCCCTGCCCTCAGTCAGTGAAACATTAGCTGCCCAAGCTCCCTCCGCCCC
 CACAGACCCCGCCCGCTGGACCCAGACAGCGTAGAGGATGAGTTTGAATTATCCACGGTGTGTACCGACTTGAGGGCT
 GGAACAACCTCCAGGAACAGACCAAGTTCACACGACAGAGAGCTGCAGGTCCTGTACCGAGGCTTCAAGAAGCAATGCCCA
 GTGGGATTGTCAACGAGGAGAACTTCAAGCAGATTATCTCAGTTCTTTCCCAAGGAGACTCCAGCAACTATGCTALT
 TTTCTCTTCAATGCCCTTGGACCAACCAAGATGGCTCTGTCAAGTTTGAGGACTTTGTGGCTGGTTTGTCCGGTGATTCT
 TCGGGGGACCATAGATGATAGACTGAGCTGGGCTTTCAACTTATATGACCTCAACAAGGACGGCTGTATCAACAAGGAGG
 AAATGCTTGACATTATGAAGTCCATCTATGACATGATGGGCAAGTACACATACCTGCCCTCCGGGAGGAGGCCCAAGA
 GAACACGTGGAGAGCTTCTTCCAGAAGATGGACAGGAACAAGGACGGCTGGTGACCATCGAGGAATTCATCGAGCTTG
 TCAACAGGACGAGAATCATGAGGTCCATGCAAGCTCTTTGATAATGTCTATCTAGCTCCCCAGGAGAGGGGTAGTGTG
 TCCTAGGGTGACCAAGCTGTAGTCTAGTCCAGACAACTAACCCTCTCTCTCCAGGCTGTCTCATCTTACCTGTAC
 CCTGGGGGCTGTAGGATTCAATATCCTGGGGCTTCAAGTATCCAGATCCCTGAGCTAAGTCAAAAAGTAGGCAAGAGT
 AGGCAAGCTAAATCTGGGGGCTTCCCAACCCCGACAGCTCTCACCCCTTCTCAACTGATACCTAGTGCTGAGGACACCC
 CTGGTGTAGGGACCAAGTGGTTCTCCACCTTCTAGTCCCACTTAGAAACCATTAGACAGAAGGTCTCCTGCTATGGT
 GCTTTCCTCCATCCTAATCTCTTAGATTTCTCAAGACTCCCTTCTCAGAGAACACGCTCTGTCCATGTCCCCAGCTGG
 GGACATGGACAGAGCGTGTCTCTAGTTCTAGATCGCAGCGGCCGC

RAT 90L PROTEIN (PARTIAL)

RDLDSYDQLTGHPGPSKKALKQRFLKLLPCCGPQALPSVSETLAAPASLRPHRPRPLDPDSVEDEFELSTVCHRPEGL
 EQLQEQTFRRELQVLYRGFKNECPGIVNEENFKQIYSQFFPQDSSNYATFLNADFTHDGSVSFEDFVAGLSVIL
 RGTIDDRLSWAFNLVDLNKDGCTKEEMLDIMKSIYDMMGKYTYPALREEAPREHVESFFQKMDRNKDGVTVEEFESFC
 QQDENIMRSMQLFDNVI

FIGURE 8

GGGAGGACTCTGAGGTTGGGCCCTAAAATCAAGCGCTCCCAAGAAAGAGCTTGGCAAGCCCTACTCCCGGGCCCCAGCGG
 AGCAGGTCGCTGCGCCCGCAGAGGGGCACTGTGTGAGCGGCTTATCTCTGGCAACCGGGCGGCCCTCCCAAGCGGCCAGCGG
 GAGGAGCGGGGCGCGGGGGCAATGCGGGGCCAAGCGCGAAAGGAGAGTTTGTGCGAAATCCCGAGATTGGACGGCTCTTAT
 GGACACGCTTACAGGCGCACCTCTCAGCGGCTAGTAAAAAGGAGAGGAGGTTTCTCAAGTGTGTGGTGTCTCCGCG
 GCCCAAGCCCTGCCCTTATGAGTAGTAAACATTAAGCTGGCCAGCCCTCCCTCCGCGCCCAAGCAGCCCGCGCTGGACG
 CAGACAGGGTGGAGGATGAGTTTGAACATCCACGGTGTGCCACCGGCTGAGGGTCTGGAACACCTCCAGGAAACAAAC
 AAGTGTACACCGAGAGAGTTGCGAGGCTGTACAGAGGCTTCAAGAAACGAATGTCCCAAGCGGAATTGTCAACGAGGAGAA
 CTTCAAGCGAAATTTATTTCTCAGTTCTTTCCCAAGGAGACTCCAGCAACTACGGCTACTTTTCTCTCAATGCCCTTGGACA
 CCAACCATGATGGCTCTGTCACTTTTGAGGCACTTTGTGGCTGGTTTGTCACTGAGTATTCTTCGGGGAACCATAGATGATAGA
 CTGAAGCTGGGCTTCAACTATATGACCTTCAACCTACCCAGGATGGCTGTATCAGCAAGGAGGAAATGCTCGACATCATGAAGTC
 CACTCTATGACATGTAGGGCAAGTACACTACCTACCGTCTCCGGGAGAGGCGCCGGAAGAGCGCTGGAGAGGACTCTTCC
 AGAAGATGGGACAGAAACAGGACGGGTGGTGACATTTGAGGATCTTGAAGTCTGTCAACGAGAGGAGAACATCTG
 AGGTCCTCACTCACTCTTTGATAATGTCACTAGCTCCCAAGGAGAGGGGTAGTGTGTCCAGGGTAACCATGCTGTAG
 CCTATGTCAGGCAAACTAACCTCTCTCTCCCGGCTGTGCTCTACTCTACCTGTACCTGGGGGCTGTAGGAGTTCA
 ACATCTCGCGGCTTCAAGTATGCCAGATCCCTGAGCTAAGTGGGAGAGATAGCAAGCTAAGTCTTTGGAGGGTGGGTGGG
 GCGCGCAGATCTCCCAACCCCGCAGCACTCTCACCTTTCTCGAGTGATACCCAGTGCTGAGGCTACCCCTGGTGTGG
 TCCCACTGCAAAATGGTGTCTCTGCTCCCTCCGCACTCTAGACCCACCACTAGACGGGAATATCTCTGCTATGGTGCT
 TCCCACTCCTGACCGAGATTTCTCTCAAGCTCTCTTCAGAGAAATAGCTTTTGTCCCTCTGAGCTGGCTGGC
 TTTTCAGCTAGCTTTTGAGGACTTCTGGGAGGGGAGAAATAAGAAAGCAGACAAATCTTGGCCCTGAGCGAGTGGTTA
 GGCTCTAGGAATACGGCTGGATGGAGACCAGAAAGCTGGGCAAGCTATGAGAGCCAGAGTGGTGGTGTCTACCGGCCAG
 GTTCCACAGGGCTGCTGCTCTGGGTACGAGAGTATGAGTTTCCAGACTTTCCAGAGGGCTTATGTCTTATGCAATGTC
 TCAGAAATTCACCATACACTCTCAGTGTCTTAGGATCCAGATGTCGGTCCATCCCTGAAACCTCTCCCTCTCTCTTCG
 CAGTATGGTGAGGTGTGGCCAGGGGACGATGATGAGCGGCGGTCTCGATATGCTCTGTCAAGGTTCCGCACTACCTT
 CCGGTGTCTAAGGCTGTCTGGTGAACCTGTGTTATGTTCACTGACGCCCTCTGTAGTATGAGAGGTGGAGCTGAGTCTAG
 GGCAGTCTTAGGGGAATGGGAAGAACGAGAAGGGCACTCCATCTGAACCCAGTGTGGGGGATCCATTGCAATTTTTC
 TGGCTCCCCACAAATGCCCTAGGATCTCTAGGGTCCCCACCCCACTCTTATGCTACCCAGAGATGCTCCAGAGCTCA
 CTTAGAGGGGAGGGAACATAGGATCCAGGTCCAACTGTATCAAGCATCCGCGCATGCTGCTGCTGCTTATTAATAAACCC
 GCTTGTGCTTCAAGCGCCCTTCCCATGACCAAGGGTGTAGGGGAAGCGCCCACTTCCCGCTCTCTGTACAGACTT
 GTGACTGCTTTCGATATTTTGGGCTCTTCTACCTATATTTGTATAATAAGAAAGACACAGATCCAATAAACACATGGC
 TATGACGCTCAAAAAA

MRQGGRKESLSESRDLDSYDQLTGHPPPSKALKQRFLKLLPCCGQPALPSVSETLAAPASLRPHRPLRPDPSVEDE
FELSTVCHRPEGLEQLQEQTKFTRRELQVLYRGFKNECPSGVINEENFKIYISQFFPGQDSNNYATFLFNAPDTNHGDSV
SFEDFYAGLSVLRTIDDRLLNMAWFLNLDKGCITCMEKMDIMKSIYDMMGMKYTPALREEAPREHVESFFQKMDRNRK
DQVVTIEEFIESCODDENMRSMOLFNDNVI

FIGURE 9

CTCACCTGCTGCTAGTGTTCCTCTCTGCTCCAGGACCTCCGGGTAGACCTCAGACCCCGGGCCATTCCAGACTCA
 GCCTCAGCCCGGACTTCCCAAGCCCGACAGCAAGTAGGGCCGCCAGGGGGCGCGTGTGAGCGCCTATCCCGGCCACC
 CGGCGCCCTCCCAAGGCCCGGGGGAAGCGGGGCGCGGGGCCATGCGGGGCCAGGGCCGAAGGAGAGTTGTCCG
 ATTCCCGAGACCTGGACGGCTCTACGACCAAGCTCAGGGGCCACCTCCAGGGGCCACTAAAAAGCGCTGAAGCAGCGA
 TTCTCAAGCTGCTGCGTGTGCTGGGGCTCAAGCCCTGCCCTAGTCAGTGAAGAACAGCGTGGACGATGAATTGAATT
 GTCCACCGTGTGTACCGGCTGAGGGTCTGGAGCAGCTGCAGGAGCAAAACAAATTCACCGCAAGGAGTTGCAGGTCC
 TGTACCGGGGCTCAAGAACGAATGTCCACGGGAATTGTCAATGAGGAGAACTTCAAGCAGATTACTCCAGTCTTT
 CCTCAAGGAGACTCAGCACCTATGCCACTTTTCTCTCAATGCCTTTGACACCAACATGATGGCTCGGTCACTTTGA
 GGACTTTGTGGCTGGTTGTCCGTGATTCTCGGGGAACGTAGATGACAGGCTTAATTGGGCTTCAACCTGTATGACC
 TTAAACAGGACGGTGATCACCAGGAGGAAATGCTTGACATCATGAAGTCCATCTATGACATGATGGGCAAGTACAGC
 TACCCTGCACCTCGGAGGAGGGCCCAAGGGAACAGTGGAGAGCTTCTCCAGAAAGTGGACAGAAACAGGATGGTGT
 GGTGACCAATTGAGGAATTCATTGAGTCTTGTCAAAAGGATGAGAACATCATGAGGTCCATGCACTCTTTGACAAATGCA
 TCTAGCCCCCAGGAGAGGGGGTCAAGTGTCTCGGGGGACCATGCTCTAACCCCTAGTCCAGCGGACCTCACCCCTTCT
 TTCCAGGTCTATCTCATCTACGCTCCCTGGGGGCTGAGGGATCCAAGAGCTTGGGATTAGTAGTCCAGATCTC
 TGGAGCTGAAGGGGCCAGAGAGTGGGAGAGTGCACTCGGGGGTGTTCCTCACTCCACAGCTCTCACCCCTTCT
 GCCTGACACCCAGTGTGAGAGTGCCCTCTGTAGGAATTGAGCGGTTCCTCCACCTCTACCTACTAGAAACACAC
 TAGAGGATGTCTCTGCTATGGTGTCTCCCTCATCCCTGACCTCAATAACATTTCCCTAAGACTCCCTCTCAGAGAG
 AATGCTCCATTCTTGGCACTGGCTGGCTTCTCAGACCAACCATTTGAGAGCCCTGTGGGAGGGGCAAGAAATGTATAGGG
 AGAAATCTTGGGCTGAGTCAATGGATAGTCTAGGAGGTGGTGGGTTGAGAATAGAAGGGCTGGACAGATTATGA
 TTGCTCAGGCATACCAAGTTATAGCTCCAAGTTCACAGGTCTGCTACCAAGGCCATCAAAATATAAGTTCCAGGCTT
 TGCAGAAAGCTTGTCTCTTGAAGATGCCCAAGAAATTTCCACACCTCTCGGTATCCATGGAGAGCTGGGGCCAG
 ATATCTGGCTCATCTCTGGCAATTGCTTCTCTCTCTCTCTCTGATGTGTGTGTGTGTGTGGGGGAATGTGGA
 TGGGGGATGCTCGCTGATGCTGCAAAATTTATCCACCCCTCTGCTTATGTCCTCTTTGAGGGCTATGACT
 TGAGTTTGTGTCCATGTTCTCTATAGACTTGGGACCTTCTGAACCTGGGGCTATCACTCCCCACAGTGGATGCTT
 TAGAAGGAGAGGGGAAGGAGGGAGGCAGGCATAGC

FIGURE 10

HUMAN 9QM PROTEIN

MRGQGRKESLSDSRDLGSDYDQLTGHPGPTKJKALKQRFLKLLPCCGPQALPSVSENSVDDEFELSTVCHRPEGLEQLQE
QTKFTRKELQVLYRGFKNECPSGIVNEENFKQIYSQFFPQGDSSYATFLFNAFDTNHDGVSVSFEDFVAGLSVILRGTVD
DRLNWAFLNYDLNKDGCITKEEMLDIMKSIYDMMGKYTYPALREEAPREHVESFFQKMDRNKDGVVITIEEFIESCQKDEN
IMRSMQLFDNVI

FIGURE 10 (cont'd)

RAT 9QM DNA (CD: 214-972)

CTCACTTGTGCCCAAGGCTCTGCTCTGCCCCAGGACTCTGAGTGGGCGCTAAAACCCAGCGCTCTCTAAAGAAAAG
CCTTGCCACGCCCTACTCCCGGCCCAACCCACAGCAGTGCCTGCGCCGCAAGGGGCGCTGTGTGAGCGCCCTATTCT
GGCCACCCGGCGCCCTCTCCACGGCCCAAGCGGGAGCGGGCGCCGGGGCCATCGGGGCCAAGGCAAGAAAGGAGAGT
TTGTCTGCAATCCCGAGATCTGGACGGCTCTATGACCAAGCTTACGGGCCACCTCCAGGGCCAGTAAAAAGCCCTGAA
GCAAGCTTTCTCAAGCTGCTGCGGTGCTCGGGGCCAAAGCCTGCCCTCAGTCAGTGAACACAGCGTGAAGAGATGAGT
TTGAATTATCCAGGTGTGTACCGACCTGAGGGCTGGAACAACTCCAGGAACAGACCAAGTTACACGCGAGAGAGCTG
CAGGTCTGTACCGAGGCTTCAAGAACGAATGCCCAAGTGGGATTGTCAACGAGGAGAACTTCAAGCAGATTATTCTCA
GTTCTTCCCCAAGGAGACTCCAGCAACTATGCTACTTTTCTTTCAATGCTTTGACACCAACAGGATGGCTCTGTCA
GTTTGAGGACTTTGTGGCTGGTTGTGCGGTGATTCTTCGGGGACCATAGATGATAGACTGAGCTGGGCTTCAACTTA
TATGACCTCAACAAGGACGGCTGTATCAACAAGGAGGAAATGCTTGACATTATGAAGTCCATCTATGACATGATGGGCA
GTACACATACCTGCCCTCCGGAGGAGGCCCAAGAGAACAGTGGAGAGCTTTTCCAGAGATGGACAGGAACAAGG
ACGGCGTGGTGACCATCAGGGAATTCATCAGTCTTGTCAACAGGACGAGAACATCATGAGGTCCATGACGCTTTGAT
AATGTCATCTAGCTCCCCAGGAGAGGGGTTAGTGTGCTAGGGTGACAGGCTGTATGCTCATGCCAGACGAACCTAA
CCCTCTCTCTACGGGCTGTCTCATCTTACCTGTACCTGGGGGCTGAGGGATCAATATCTCGGGCTTCAGTAGTC
CAGATCCCTGAGCTAAGTCAAAAAAGTAGGCAAGAGTAGGCAAGCTAAATCTGGGGGCTTCCCAACCCCGACAGCTCTC
ACCCCTTCTCAACTGATACCTAGTGTGAGGACACCCCTGGTGTAGGGACCAAGTGGTTCTCCACCTTCTAGTCCCACTC
TAGAAACCAATTAGACAGAAAGTCTCTGCTATGGTGTCTTCCCATCCCTAAATCTCTTAGATTTCCTCAAGACTCCC
TTCTCAGAGAACACGCTCTGTCCAATGTCCCAAGCTGGCTTCTCAAGCTTGTGAGGCGCTGTGGGGAGGCGGGGAC
AAGAAAGCAGAAAAGTCTTGGGCCCGAGCCAGTGGTTAGTCTAGGAATGGCTGGAAGTGGAGGCCAGAAAGCTGGG
AGATGATGAGAGCCACGCTGGGCTGTCACTGAGGTCCGGGCTACAAGCCCTGGGTCAGCAGATGATGATGCCAGA
CTTCCAGAAAGTCTTAGCAATGTCCCAGAAATCACCGTACACTTCTCAGTGTCTTAGGAGGGCCCGGATCCAGATG
TCTGTTCTATCCCTGAATCTCTCCCTCTTCTGCTGTATGGTGGAGTGGTGGCCAGGGGAGAGTAGTGGTGTCCC
GGATGATGCTGTCAAGGTCCCACTCCCTCCCGGCTGTTCTATGACAGCTGTTGGTTTCCATGACCCCTATCTAGA
TGTAGAGGATGGAGTGAATCAGGGATTCCCGAACTTGAGTTTACCACCTCTCTAGTGGCTGCTTAGGGGAATGG
AAGAACCCAGTGTGGGGGACCCATTAGAATCTTTGCCCGGCTCTCAAAAGCCCTAGGGTCCCTAGGGTACCCGCTC
CTCTGTTTATGCTACCCAGAGATGCTCTGAGCTCACTAGAGGGTAGGGACGGTAGGCTCCAGGTCCAACCTCTCCAG
GTACAGACCCCTGCCATGCTGCTGCTCTCAATTAACAAACCTGCTGTCTCTCTCGGCCCTTCTCAGTCAGCCAGGGT
CTGAGGGGAAGGGCTCCCGTTTCCCCATCCGTGAGACATGGTGAAGTCTGCTGCTATTTGGGCTCTTCTATCTATTTTG
TAAAAATAGACATCAGATCCAATAAAACACACGGCTATGCAAAAAA

RAT 9QM PROTEIN

MRGQQRKESLSERLDGSDYQLTGHPGPSKJALKQRFLKLLPCCGPQALPSVSSENSVEDEFELSTVCHREPLEQLQE
QTKFTRRELQVLYRGFKNECPGIVNEENFKQIYQFFPQDSSNYATFLFNADTNHDSVSFEDFVAGLSVLRGTID
DRLSWAFNLVDLNDGCTKEEMLDIMKSIYDMMGKYTPALREEAPREHVESFFQKMDRNKDGVTTFIEESQCQDEN
IMRSMQLFDNVI

FIGURE 11

CTCACCTGCTGCTAGTGTCCCTCTCTGCTCCAGGACCTCCGGGTAGACCTCAGACCCCGGGCCATCCAGACTCA
 GCCTCAGCCCGGACTTCCCAGCCCCGACAGCACAGTAGGCCGCCAGGGGGCGCGGTGTGAGCGCCCTATCCCGGCCACC
 CCGCGCCCTCCCAACGGCCCCGGGAGCGGGGCGCGGGGGCCATCGGGGGCCAGGCCCGCAAGGAGATTGTCTCC
 ATTCCCGAGACCTGGACGGCTCTACGACCAAGCTCAGGACAGCGTGGACGATGAATTTGAATTGTCCACCGTGTGTAC
 CGGCTCGAGGGTCTGGAGCAGCTGCAGGAGCAAAACAAATTCACGGCAAGGAGTTGCAGGTCTGTACCGGGGCTTCAA
 GAACGAATGTCCAGCGGAATTGTCAATGAGGAGAACTTCAAGCAGATTACTCCAGTCTTTCTCTCAAGGAGACTCCA
 GCACCTATGCCACTTTCTCTCAATGCCTTTGACACCAACCATGATGGCTGGTCAGTTTGGAGCACTTTGTGGCTGGT
 TTGTCCGTGATTCTCGGGAACTGTAGATGACAGGCTTAATTGGGCTTCAACTGTATGACCTTAACAAGGACGGCTG
 CATCACCAAGGAGGAAATGCTTGACATCATGAAGTCCATCTATGACATGATGGGCAAGTACACGTACCTGCACCTCCGGG
 AGGAGGCCCAAGGGAACACGTGGAGAGCTTCTTCCAGAGATGGALAGAAACAAGATGGTGTGGTGACCATTGAGGAA
 TTCAITGATGTTGTCAAAAGGATGAGAACATCATGAGGTCCATGCAAGCTCTTGGACAAATGTCACTAGCCCCAGGAGA
 GGGGGTCAGTGTCTCGGGGGGACCATGCTCTAACCTAGTCCAGCGGACCTCACCCTCTCTCCCAAGGTCTATCTCT
 CATCTACGCCCTCCCTGGGGGCTGGAGGGATCCAAGAGCTTGGGGATTCAAGTAGTCCAGATCTCTGGAGCTGAAGGGGCC
 AGAGAGTGGGAGAGTGCATCTCGGGGGGTGTTCCTCACTCCACCAAGCTCTACCCCTTCTGCTGCAGACCCAGTGT
 TGAGAGTGGCCCTCTGTAGGAATTGAGCGGTTCCTCCACCTCTCACTCTAGAAACACACTAGAGCGATGTCTCT
 GCTATGGTGTCTCCCCATCCCTGACCTCATAAACATTCCCTAAGACTCCCTCTCAGAGAGAATGCTCACTTCTGG
 CACTGGCTGGCTTCTCAGACCAAGCATTGAGAGCCCTGTGGAGGGGACAAAGATGTATAGGAGAAATCTTGGGCTG
 AGTCAATGGATAGTCTCAGGAGGTGGTGGGTTGAGAAATGAAGGGGCTGGACAGATTATGATTGCTCAGGCATACCA
 GGTATAGCTCAAGTTCCACAGGTCTGCTACCACAGGCCATCAAAATATAAGTTTCCAGGCTTTCAGAGAAGACCTTGT
 TCCTTAGAAATGCCCAAGAAATTTCCACACCCTCTCTCGGTATCCATGGAGAGCTGGGGCCAGATATCTGGCTCATCTC
 TGGCATTCCTCTCTCTCTCTGATGTGTTGGTGGTGGTGTGGTGGGGGAATGGATGGGGGATGTCTCTGGC
 TGATGCTGCCCCAAATTTCTCCACCCCTCTTGTATCTGCTGCTGTTTGGGGCTATGACTTGAGTTTGTCTCCC
 ATGTTCTCTATAGACTGGGACCTTCTGAACTTGGGGCTATCACTCCCCACAGTGGATGCCTTAGAAGGAGAGGGAA
 GGAGGGAGGCAGGCATAGC

FIGURE 12

MONKEY 9QS DNA (CD: 133-795)

CCCACCGCTCCGCCACCGCTCCGCGGACGCGTGGGTGCACTAGGCCGCCAGGGGGCGCGTGTGAGCGCCCTATCCCG
 GCCACCCGGCGCCCTCCACCGACCGGCGGAGCGGGGCGCGGGGCCATCGGGGCGAGGGCCGAAGGAGAGTT
 TGTCCGATTCGGGAGACCTGAGAGAACTCTAGACCAAGCTCAGGACAGCGTGGAGGATGAATTTGAATTGCCACCGTG
 TGTACCGGCTCTGAGGCTCGGAGCAGCTGACGAGCAAAACAAATTCACGCGCAAGGAGTTGAGGCTCTGTACCGGG
 CTTCAAGAACGAATGTCGAGCGGAATTTGTAATGAGGAGAACTTCAAGCAAAATTTACCTCCAGGTTCTTTCTCAAGGAG
 ACTCCAGCACCTATGCCACTTTTCTTCAATGCCTTTGACAAACCATGATGGCTCGGTCAAGTTTGAAGGACTTTGTG
 GCTGGTTTCTCGTGATCTTCCGGGAACTGTAGATGACAGGCTTAAATGGGCTTCACTTTGATGACCTCAACAAGGA
 CGGCTGCATACCAAGGAGGAAATGCTGACATCATGAAGTCCATCTATGACATGAGGCAAGTACACATACCTCGAC
 TCCGGGAGGAGGCCCAAGGAACATGTGGAGAATCTTCCAGAAAGTGGACAGAAACAAAGGATGGCTGGTGACCAATT
 GAGGAATCTATTGAGTCTTGTCAAAAGGATGAGAACATCATGAGGTCCATGACGCTCTTGACAATGCTATGACCCCT
 AGGAGAGGGGGTCAAGTGTCTCGGGGACCATGCTCAACCTCATGTCAGGTGACCTACCTCTCTTCCAGGTC
 TATCTTGTCTTACGCTCCCTCGGGGCTGAGGGATCCAAAGAGCTTGGGGATTGAGTATGTCAGATCTCTGGAGCTGAA
 GGGGACAGAGAGTGGGAGAGTGATCTTGGGGGTGTTCCCAACTCCACCAAGCTTACCCGCTCTGCTGACACCC
 CAGTGTGAGAGTGCCTCTCTGTAGGAACGTAGTGGTTCCTCCACTCTCTAGAAACACACTAGACAGAT
 GTCTCGTCTATGGTCTTCCCATCCCTGACTTCAAAACATTTCCCTAAACCTCTCTCAGAGAGAATGCTCCA
 TTCTTGGCACTGGCTGGCTTCTAGACACGCTTTGAGAGCCCTGTGGAGGGGGACAAGATGTATAGGGGAGAAATCT
 TGGGCTGAGTCAATGGATAGTCTAGGAGGTGGCTGGGTTGAGAATAGAAAGGCTGGACAAATGTGATTGCTCAG
 GCATACCAAGTTATAGCTCCAGTTCCACAGGTGCTGCTACCAAGGCCATAAAATATAAGTTTCCAGGCTTTCAGAAG
 ACCTGTCTCTTGGAAATGCCAGATATTTCCATACCTCTCGATATCCATGGAGAGCCTGGGCTAGATATCTGG
 CATATCCCTGGCATGTCTCTCTCTCTCTCTGCAATGTTGGTGGTGGTGTGGCAGGGGAATGTGGATAGGAGAT
 GTCTGGCAGATGCTGCCAAAGTTTATCCCACTCTCTGCTCATCGCCCTGTTTGGAGGCTGTGACTTGAGTTTT
 TGTTCCTCATGTTCTATAGACTTGGGACCTTCTGAACTTGGGGCTATCACTCCACAGATGATGCTTGAAGGG
 AGAGGGAAGGAGGAGGCAAGCATAGCATCTGAACCAAGTGTGGGGGCTTCACTAGGATCTTCAATCAACCCGGGCTCT
 CCCCACCCCCAGATAACCTCTCAGTTCCCTAGAGTCTCTCTGCTCTACTCAATCTACCAAGAGATGCCCTTAGC
 ACCTCAGAGGGGAGGACCATAGGACCAAGGTTCCAAACCCCATTTGTACGACCCCAAGCATGCTGCCATCCCTTAGCAC
 ACCTGCTGTCCTCATGCTTACCTCCAGTCAGCCAGAACTGAGGGGAGGGGCCAGAGAGGCCCTCTCCCATC
 AGAAGAGCTGTTGACTGCTTTGCAATTTTGGGCTCTCTATATATTTTGAATAAAGAACTATACAGGATCTAATAAAACA
 CAATGGCTATGCAAAAAAAAAAAAAAAAAAAAA

MONKEY 9QS PROTEIN

MRGQGRKESLSDRLDGSYDQLTDSVEDEFELSTVCHRPEGLQEQTKFRLKELQVLYRFGKNECPGVIENEFKQ
 IYSQFPQDSSYATFLFNFDTHDGSVSFEDFVAGLSVILRGTVDRLLNWFNLVDLNDGCTIEMEIMKSIYD
 MMKGTYPALREEAPREHVENFFQKMDRNDGVVTTIEEFESQKDENIMRSMQLFDNVI

FIGURE 13

RAT 9QC DNA (CD 208-966)

TGCTGCCAAGGCTCCTGCTCTGCCCAAGGACTCTGAGGTGGGCCCTAAAACCCAGCGCTCTCTAAAGAAAAGCCTTGC
CAGCCCTTCTCCCGGCCCAACCCAGCAGGTGCTGCTGCCGCCAGGGGGGCGCTGTGTGAGCGCCTATTCTTGCCAC
CCGGCCCCCTCCACGGCCAGGGCGGAGCGGGGCGCGGGGGCCATCGGGGCCAAGGCAAGAGAGAGATTTGTCT
GAATCCCGAGAATCGAGCGCTCTATGACCAAGCTTACGGGCCACCTCCAGGGCCAGTAAAAAGCCTTGAAAGCAGCG
TTTCTCAAGCTGCTGCGTCTGCGGGCCCAAGCCTCGCCTCAGTCAGTGAACAGCGGTAGGATGAGTTTGAAT
TATCCACGGTGTGTCACCGACTGAGGGCTTGAACAACTCCAGGAACAGACCAAGTTCACACCGCAGAGAGCTGCAAGTC
CTGTACCGAGGCTCAAGAACGAATGCCAGTGGGATTGTCAACGAGGAGAACTTCAAGCAGATTATTCTCAGTTCTT
TCCCCAAGGAGACTCCAGCAACTATGCTATCTTTCTCTCAATGCTTTGACACCAACAGATGGCTCGTCAGTTTG
AGGACTTTGTGGCTGGTTGTCTGGTATTCTTCGGGGGACATAGATGATAGACTGAGCTGGGCTTCAACTATATGAC
CTCAACAGGACGGCTGTATCACAAGGAGGAAATGCTTGACATTATGAAGTCCATCTATGACATGATGGGCAAGTACAC
ATACCTCGCCTCCGGAGGAGGGCCCAAGAGAACACGTGGAGAGCTTCTCCAGAAAGATGGACAGGAACAGGACGGG
TGGTGACCATLGAAGAAATTCATCGAGTCTTGCAACAGGACGAGAACATATGAGTCCATGACGCTCTCACCTCTCTC
AACTGATACCTAGTGTGAGGACACCTCGGTGTAGGAGACCAAGTGGTTCTCCACCTTCTAGTCCCACTTAGAAGACAC
ATTAGACAGAAAGTCTCTGCTATGGTCTTTCCCACTCCCTAACTCTTAGATTCTCTCAAGACTCCCTCTCAGAGA
ACACGCTCTGTCCATGTCCCAAGCTGGCTTCTCAGCTAGCCTTTGAGGGCCCTGTGGGAGGCGGGGACAGAAAGCAG
AAAAAGTCTTGGCCCCGAGCAGTGGTAGGCTTAGGAAATGGCTGGAATGGAGGCCAGAAAGCCTGGGACAGATGATGAG
AGCCACGCTGGGCTGTACTGACGGTTCGGGGCCACAGCCCTGGGTGAGCAGAGTATGAGTCCAGACTTCCAGAA
GGTCTTAGCAATGTCCAGAAATTCACCGTACACTTCTCAGTGTCTTAGGAGGGCCCGGATCCAGATGTCTGGTTCT
CCCTGAATCTCTCCCTCTCTTCTGCTGATGTTGGGAGTGGTGCCAGGGGAAGATGAGTGGTGTCCCGGATGATGCC
TGTCAAGGTCCCACTCCCTCCGGCTGTTCTCATGACAGCTGTTTGGTTCTCCAAGCCCTATCTAGATGTAGAGGCA
TGGAGTGAATCAGGAGTTTCCGAACTTGAATTTTACCACTCTCTCTAGTGGTGCCTTAGGGGAATGGGAAGAACCCAG
TGTGGGGGACCCATTAGAACTTTGCCCGGCTCTCACAATGCCCTAGGGTCCCTAGGGTACCCGCTCCCTCTGTTA
GTCTACCCAGAGATGCTCTGAGCTCACTAGAGGGTAGGGACGGTAGGCTCCAGGTCCAACCTCTCCAGTCAAGCACCC
TGCCATGCTGCTGCTCTATTAAACAACTGCTTGTCTCTCTGCGGCCCTTCTCAGTCAGCAGGGGTCTGAGGGGAA
GGGCTCCCGTTTCCCAATCGTCAGACATGGTTGACTGCTTTGCAATTTGGGCTCTTCTATCTATTTTGAATAAAGA
CATCAGATCCAAATAAACACACGGCTATGCACAAAAAAAAAAAAAAAAAAAAAA

RAT 9QC PROTEIN

MRQGNKESLSRDLGSDYQLTGHPGPSKALKQRFLKLLPCCGQALPSVSENSVEDEFELSTVCHRPEGLEQLQE
QTKFTRELQVLYFRGKNECPGIVNEENFKQIYSQFFPQGDSSNYATFLFNFDTNHDGSVSFEDFVAGLSVILRGITD
DRLSEWAFNLYDLNKGCTKKEEMLDIMKSIYDMGKTYTPALREEAPREHVESFFQKMDRNDKGVVTFIEFSCQDDEN
IMRSMQLSPLLN

FIGURE 14

RAT BT (9Q SPLICED VARIANT) DNA (MAY NOT BE FULL LENGTH, CD: 1-478)
 ATGAACCACTGCCCTCGCAGGTGCCGGAGCCGTTGGGGCAGGCAGCTCGATCTCTCTACCACTGGTAACCTGGGTCCT
 GTGCCGACAGACGCTAGAGGATGAGTTTGAAATATCCACGGTGTGTACCGACTGAGGGCCTGGAACTCCAGGAAC
 AGACCAAGTTCACACGACAGAGCTGCAGGTCTGTACCGAGGCTTCAAGAACGAATGCCCACTGGGATTGTCAACGAG
 GAGAACTTCAAGCAGATTTATTCAGTCTTTCCCAAGGAGACTCCAGCAACTATGCTACTTTCTCTCAATGCTT
 TGACACCAACACAGATGGCTCTGTGAGTTTGGAGACTTTGTGGCTGGTTGTGGTATTCTCGGGGACCATAGATG
 ATAGACTGAGCTGGGCTTCAACTATATGACCTCAACAAGGACGGCTGTATCACAAGGAGGAAATGCTTGACATTATG
 AAGTCACTATGACATGATGGGCAAGTACACATACCTGCGCTCCGGGAGGAGGCCCAAGAGAACACGTGGAGAGCTT
 CTTCAGAAAGATGGACAGGAACAAGGACGGCTGGTGACCTCAGGAATTCATCAGTCTTGTCAACAGGACGAGAAC
 TCTAGAGGTCCATGCAGCTCTTTGATAATGTCACTAGCTCCCCAGGAGAGGGGTTAGTGTGCTCAGGCTGACAGGC
 TGTAGCTAGTTCAGACGAACCTCAACCTCTCTCTCAGGCTGTCTCTATCTTACCTGACCCCTGGGCTGTAGGGA
 TTCATATCTGGGGCTTCTAGTCTCAGATCCCTGAGTCAAGTCAACAAAGTAGGCAAGAGTAGGCAAGCTAAATCTGG
 GGGCTTCCCAACCCCGACAGCTCTCAACCTCTCAACTGATACCTAGTGTGAGGACACCCCTGGTGTAGGACCAAG
 TGGTTCTCCACTTCTAGTCCCACCTAGAAACCAATTAGACAGAAAGTCTCTGTCTGTGGCTTCTCCCACTCTAA
 TCTCTAGATTCTTCTCAAGACTCCCTTCTCAGAGAACACGCTCTGTCCATGTCCCACTGGCTTCTAGCTAGCTT
 TGAGGGCCCTGTGGGAGGGGGGACAAAGAACAGAAAGTCTTGGCCCGAGCTAGTGGTTAGGTCTAGGAATTGGC
 TGGAGTGGAGGCGCAAAAGCTGGGAGATGATGAGAGCCAGCTGGGCTGTCACTGCAGGTTCCAGGGCTACAGCCCT
 GGGTCAGCAGAGATGATGTTCCAGACTTTCAGAAAGTCTTACCAATGTCCAGAAATTCACCAATACACTTCTCAGTG
 TCCCGATGATGCTGTCAAGGTCCCACTCCCTCCGGCTGTTCTCATGACAGCTGTTGGTCTCCATGACCCCTATC
 TAGATGTAGAGGCTGAGGTGAGTCAGGGATTTCGGAACCTTGAGTTTACCACCTCTCTAGTGGCTGCTTAGGGGAA
 TGGGAAGAACCCAGTGTGGGGGACCCATTAGAATCTTTGCCGGTCTCTCACAATGCCCTAGGGTCCCTAGGGTACCC
 GCTCCCTCTGTATTGCTACCCAGAGATGCTCTGAGCTCACTAGAGGGTAGGGACGGTAGGCTCCAGGTCACCACTCT
 CCAGGTGACGACCTGCCATGCTGCTGCTCTCATTAAACAACTGCTGTCTCTCTGCGCCCTCTCAGTCAGCCA
 GGGCTGAGGGGAAGGGCTCCCGTTTCCCATCCGTGAGACATGGTTGACTGCTTTGCATTTTGGGCTCTCTATCTAT
 TTTGTAATAAAGACATCAGATCAATAAACAACACGGCTATGCAAAAAAAAAAAAAAAAAAAAA

RAT BT (9Q SPLICED VARIANT) PROTEIN (MAY NOT BE FULL LENGTH)
 MNHCPRCRSLPQQAARSLYQLVTGSLSPDSVEDEFELSTVCHRPEGLQLQEQTKFTRRELQVLYRGFKNECPSQIVNE
 ENFKIYQSFFPQGDSSNYATFLNFAFDTHDGSVSFEDFVAGLSVILRGTTIDRLSWAFNLVDLNDKGCITKEMLDIM
 KSIYDMMGKYTPALREAPREHVESFFQKMDRNDKGVVTFIEFESQQDENIMRSMQLFDNVI

FIGURE 15

>human KChIP3 cds = 1-7
 ATGCAGCCGGCTAAGGAATGACAAAGGCGTCGGACGGCAGCCCTGGGGGACCTCGGGC
 ACACACCACTTAGCAAGAA
 GGAGGGTATCAAGTGGCAGAGGCCGAGGCTCAGCCGCCAGGCTTTGATGAGATGCTGCCTG
 GTCAAGTGGATCCTGTCCA
 GCACAGCCCCACAGGGCTCAGATAGCAGCGACAGTGAGCTGGAGCTGTCCACGGTGCGCCA
 CCAAGCCAGAGGGGGCTGGAC
 CAGCTGCAGGCCCAAGCAAGTTACCAAGAAGGAGCTGCAGTCTCTTACAGGGGCTTTA
 AGAATGAGTGTCCACGGG
 CCTGGTGGACGAAGACACCTTCAAATCATTTACGCGCAGTCTTCCCTCAGGGAGATGCCA
 CCACCTATGCACACTTC
 TCTTCAACGCCTTTGATGCGGACGGGAACGGGGCCATCCACTTTGAGGACTTTGTGGTTGGC
 CTCTCCATCTGTCTGCGG
 GGCACAGTCCACGAGAAGCTCAAGTGGGCCTTTAATCTCTACGACATTAAACAAGGATGGCT
 ACATACCCAAAGAGGAGAT
 GCTGGCCATCATGAATGCCATCTATGACATGATGGGCCGCCACACCTACCCCATCTGCGGG
 AGGACGCGCCGGCGGAGC
 ACGTGGAGAGGTTCTTCGAGAAATGGACCGGAACAGGATGGGGTAGTGACCATTGAAGA
 GTTCTCGGAGGCTGTGAG
 AAGGATGAGAACATCATGAGCTCCATGACGCTGTTTGAGAATGTCTATAGgacacgtccaaaggagt
 gcatggccacag
 ccacctccacccccagaacacctccactctgccaggagcagcctcaagaacctttaaaaatagattgcaaaaagt
 aacagattgtctacacacacacacacacacacacacacacacacacagccattcatctgggctggcaggaggag
 agagttcagggaggggctgagctctggctaggcccgagctccaggagcccccagccagccctccagggccagcgaggc
 gctgctctgggtagtgagctgacagagcaggtctgcaggccaccagctgctgtagtgcaccaagaaggggctcagtg
 cctgcaggggagggtccaatcccggtgtagcccaacctgcccgtctctattctcttctccacacagtgaggc
 cggcccccagctccctggctctcccccgtagccactctgcccactactatgctcttagaagaacccctcactcag
 gacccagagggagcagctggggggcaggggggagagggttaatgaggcccaagctgcagcttctgaaattcttc
 ctgggggtccaggatccctgctactccactgacctggaagagctgggtaccaggccaccactgtggggcaagcctga
 gtggtagggggccactggcccccattctccctccatggcagggaaggcggggatttcaagttaggagattggctgtg
 ggagaatctagggactctctgcagctccacaggtgggtagctcctctctcccagctcctgttgtagtggaat
 gcagtggtgtgggctgtacacacctccagcacagactgttccctcaaggtctcttaggtcccggagggaactgtgt
 cagagactgcagccaggagcccggggcagagctcagaggagctcgggaaggggcgtgctccctctctctgtagtgc
 cctcccatggccagcagctgtgctgagccccctctcgaagcagtgctgcccctctgcttgcacaaaaagcac
 aagcattcttagcagctcaggcgagccctagtggggagcccagcacactgctctcggagccaggccctctgtcggc
 tgaggcttgccccagtagccccaatgtgggctcgggaaggccctggggctgctctgtgctggatcagtg
 gggccccaaggccagcccggtgaccaacattcaaaagcacaaacctggggactctgctgtgctctccctcatctg
 gggatggagaatgccagcccaagctggagccaatggtaggggtgagagggtgtggtgggtgtgcagcaagaacccc
 caggaggagagagatgctgctcccgctgattggggctcaccagaaggaaacccgtgccagggcgatggccctcca
 ggacattccacataatattccatcacagccagcccgctcactcagggctgcccgggaggtcccggtgtgcccc
 aaggagctagcccccagggtagcaggccctcagaggaaaggcagtagggcgagccatggggggccctcggcattcac
 acacagctggctccctcgggagctgcatggagcctggctcagggtccagggtgactgggggctgctgcctcag
 agggctacagctttccctgtcagggatcttctccctcaccgctgccagccctccagctgtgtgctactg
 cctctaaggccaaggctcaggagagcatcacaccacacccctgccggccttgctggggcgagctggctgcacag
 cccaacaggaggggtgctgctccacgtctgggacacagaccggccgcatgtctgtaggcagaagcgtctctgtggc
 acggcctggagggtgtgtctgtctcagcatccactaatattcagctctgtatatttaataaaaactgtacaaa
 ggaaaaaaaaaaaaaaattctgcccggcggttccca

FIGURE 16

>human KChIP3

MQPAKEVTKASDGSLGDLGHTPLSKKEGIK WQRPRLSRQALMRCCLVKWILSSTAPQGSDDSD
SELELSTVRHQPEGLD
QLQAQTKFTKKELQSLYRGFKNECPTGLVDEDTFKLIYAQFFPQGDATTYAIHFLNADFADGNG
AIHFEDFVVGLSILLR
GTVHEKIKWAFNLYDINKDGYITKEEMLAIMKSIYDMMGRHTYPIREDAPAEHYVERFEKMD
RNQDGVVTIEEFLEACQ
KDENIMSSMQLFENVI

FIGURE 16 (cont'd)

RAT P19 DNA (FIRST-PASS, PARTIAL, CD:1-330)

TTTGAAGACTTTGTGGTTGGGCTCTCCATCCTGCTTCGAGGGACCGTCCATGAGAACTCAAGTGGGCTTCAATCTCTA
CGACATCAAC AAGGACGGTTACATCACCAAAGGAGATGCTGGCCATCATGAAATCCATCTACGACATGATGGGCCGCC
ACACCTACCCTATCCTCGCGGAGGACGCACCTCTGGAGCATGTGGAGAGGTTCTTCCAGAAAAATGGACAGGAACAGGAT
GGAGTAGTGACTATTGATGAATTTCTGGAGACTTGT CAGAAGGACGAGAACATCATGAGCTCCATGCAGCTGTTTGAGAA
CGTCATCTAGGACATGTAGGAGGGGACCCCTGGGTGGCCATGGGTTCTCAACCCAGAGAAGCCTCAATCCTGACAGGAGAA
GCCTCTATGAGAAACATTTTTCTAATATATTTGCAAAAAAGTG

RAT P19 PROTEIN (PARTIAL)

FEDFVVLGILLRGTVHEKLK WAFNLYDINKDGYITKEEMLAIMKSIYDMMGRHTYPILREDAPLEHVERFFQKMDRNQD

GVVTIDEFLETQKDENIMSSMQLFENVH

FIGURE 17

MOUSE P19 DNA (CD: 49-819)
 CCGGCTGCAAGCGGGAAGATTAGTGACGGTCCCTTCAGCAGCAGAGATGCAGAGGACCAGGAAGCCGTGAAGGCAATC
 AGATGGCAACTCTCTGGGAGATCTGGGCGCATACCACTGAGCAAGAGGAAAGCATCAAGTGGCAAGAGCCACGGTTC
 CCGCCAGGCGCTGATGCTGTCTTAATCAAGTGGATCTGTCCAGTGCTGCCCAAGGCTCAGACAGCAGTGGAC
 AGTGAATCGAGTTATCCACGGTGCCTCATCAGCCAGAGGGCTTGACCAGCTACAAGCTCAGACCAAGTTCAACCAAGAA
 GGAGCTGCAGTCCCTTACCAGGCTTCAAGAAATGAGTGTCCACAGGCTGGTGGATGAAGACACCTTCAAACTCATTT
 ATTCCAGTGTCTTCCCTCAGGAGATGCCACCACTATGCACATCTCTTCAATGCTTTGATGCTGATGGGAACGGG
 GCCATCCACTTTGAGGACTTTGTGGTGGGCTTCCATCTGCTCAGGGAGCGTCCATGAGAGCTCAAGTGGGCTT
 CAATCTCTAGACATTAACAAGGATGGTTGCATCACCAGGAGGAGATGCTGGCCATCATGAAGTCAATCAGACATGA
 TGGGCGCCACACCTACCCCATCTCTGGGAGGATGCCACCTTGGAGCATGTGGAGAGGTTCTTTCAGAAAAATGGACAGG
 AACAGGATGGAGTGGTGAACATTGATGAATTTCTGGAGACTTGTCAAGAGATGAGAACATCAAGAACTCCATGCACTG
 GTTTGAGAACGTCTATGAGCATGTGGGAGGGGACCCAGTGGTATTGTTCTCAACCCAGAGAACGTTCACTCAACAGAA
 CAGGAGAACGCTCTATGAGAAACATTTTCTAATAATTTGCAAAAAGTGAGCAGTTTACTTCAAGACALAGCCALCTGT
 CACACACAGACACAGACATACAGACACACACACACACACACACATGGTTCTCTGGCTGGCCAAAGGAAGTGGACGC
 AGAAGGACCCCGCCCTATTCTAGTCAATAAAAAAGGCTGCCCTGGGATGGCCAGCCCTGGCTAGATGTTACCCACA
 AGGAACTCAGAGATCGAGAGGACACGGTCTACAAAGCTAAAGTCCCTGTGTCTTTTCTACCACTCGGAGATCAAACTAC
 TCCCTGCTATGACCCATGCTCTTAGGAAGCTCCCAAGAACTCCAAAGGGGACAAAGAGGGGAGAGGTTCTATAGGAAGA
 ATGGTTTTGGAAGCTGGGCTTGACGCTTAATGCTAATGATCACTGGGGTCTGGAAACCGAGTGCCAGGCTACTACTA
 TGCCGTGAGCTTAGATAGTGAGGGGCCATTGGACTAAGACCTCTGTAAAGTGGGCGAGGATTGAGGTTTTTGGAGAAA
 CTGAGGAAACATTTGTCCATACCAGTGGTGAAGACTGCTGGCCAGTGGGAATGTGGCTGGTGAGATTTCCTCACTTC
 CAGCACAGGATGGCTCTCCAAAGTCTCTTTGATTCCTGGGAGATCACTGGCTCATAGACTGACAACCAAGGGAAC
 TGGGCTGAAATGGAGGTTGGTAGGGGCAATCCCTCTCTTCCCTGGCCACTTGCACCCAGTCTCTTAACACAGTG
 GATCGGCCACACCTCTGTGGCTGCCCTGAACAGACTCATCCGACCAAGACAAAAAGCAACAACTCTCAGCAGCTCAG
 GCCAAGCCCAAGGGAAGGCTGGTCCCTGCAGCCCTGATTCAGTGGCCGAGGAAGAGCTCAGACATCCATCTGTGA
 CCTCGAGGCTTTGGGGTCTCACAGCCCTTCCAGCCCAAGCTCGCCAACTTCTAAAGCAACAACTGGGAGTTCTGCT
 TGCTTGGGCTGCGCTGGGATTGAAGGCCACTGTAACCTAAAGCTGGAGCTAGCCCTGAGGCTGGGAGCTGTGAC
 CAGGCAACAGGTGAGCAGACCTCAGGAGGAGAGAGCTGTTCTGCTCCCAAGGCTCGCCCAAGGGAACAGTGT
 CCAAGAAAGCATTTTCTGGAAGAACATCCCAACAAAGTACATCCATCATCTGAAGCCCGGTCTCTGCTCAGGCTGC
 CTCTGAAAGTCCAGTGTGTTCCTCAGAGGCCAGCCCAAGATAGGGAGGTCCTTAGAGGAAGGACAGGTTGACAA
 CCCCATACACAGGTGGACCCCTCTGAGGACTGTACTGACCCATCTCCATCTGACCCGGGCTTCTTATCCCGA
 TCTACAGACCACAGTTCTCTTGGCTAGGGACCCCTGTCCCCAGTCTGACTCTCCATCAGAGGTCCCTGCTTGT
 GAAAAAGCAAGGCCACGGGAAAAAGCCACCACTTAACCTGTGTGATCCCTTAGCTCTGGCTGCACGCCCACTGGAG
 GGGTCTGTCCCTTGCAGGGACACAGACTGGCCGATGTCCGATGGCAGAAAGCTCTCCTTGGGTGACAGCTGGAAAG
 GGTGTTTCTGTCTCAGCGCCACCAATATTCAGTCTATATATTTAATAAAGGAACTGACAAAGGAAAAA
 AAAA

FIGURE 18

>AI352454 (partial) cds = 1-339

CACGAGGTGGAAGCATTTCGGCTCAGCTGGAGGAGGCCAGCTCTACAGGCGGTTTCCTGT
ACGCTCAGAACAGCACCAA
GCGCAGCATTAAAGAGCGGCTCATGAAGCTCTTGCCCTGCTCAGCTGCCAAAACGTCGTCTC
CTGCTATTCAAAACAGCG
TGGAAGATGAACTGGAGATGGCCACCGTCAGGCATCGCCCCGAAGCCCTTGAGCTTCTGGA
AGCCAGAGCAAATTTACC
AAGAAAGAGCTTCAGATCCTTTACAGAGGATTTAAGAACGTAAGAACTTTCCTTTTGACTTT
ACCTTCACACAATTCCCA
GAGGAGCATTGAGAAATGAgaggaaaaggggaaaatatccattctatgagaagcccccatatgtatattcact
gatcttcccagataggaaatataatcagtatctgtggactttgaatctctgtggcacacccatgctggcatactgtaatt
gcccattaaacaaanagtttttgagaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

>AI352454

HEVESISAQLEEAASSTGGFLYAQNSTKRSIKERLMKLLPCSAAKTSSPAIQNSVEDELEMATVRHR
PEALELLEAQSKFT
KKELQILYRGFKNVRTFFLTLP SHNSQRSIEK

FIGURE 19

P193 (AA349365) DNA (CD: 2-127, partial)

TGAAGGTTCTTCGAGAAATGGACCGGAACCCAGGATGGGGTAGTGACCATTTGAAGAGTTCTCTGGAGGC
CTGTTCAGAAAGGATGAGAACATCATGAGCTCCATGCAAGCTGTTTGAAGATGTCATCTAGGACACGTCCAAA
GGAGTGCATGGCCACAGCCACCTCCACCCCAAGAAACCTCCATCTGCCAGGAGCAGCCTCCAAAGAAA
CTTTTAAAAAATAGATTTGCAAAAAGTTGAACAGATTGCTACACACACACACACACACACACACACAC
ACACACACACAGCCATTTCATCTGGGCTGGCAGAGGGGACAGAGTTTCAGGGAGGGGCTGAGTCTGGCTAG
GGGCGGAGTCCAGGAGCCCCAGCCAGCCCTTCCAGGCCAGCGAGGCGAGGCTGCTCTGGGTGAGTGG
CTGACAGAGCAGGTCTGCAAGGCCACAGCTGCTGGATGTCACCAAGAAGGGGCTCGAGTCCCTCTGAG
GGGAGGGTCCAAATCTCCGGTGTGAGCCACCTCTGCTCCGTTCTCCATTCTGCTTCTCTGCCACACAGTGGG
CCGGCCCCAGGCTCCCTGGTCTCTCCCGTAGCCACTCTCTGCCACTACTATGCTTCTAGAAAAGCCC
CTCACCTCAGGACCCAGAGGGACACAGCTGGGGGGCAGGGGGGAGAGGGGTATATGGAGGCCAAGCCT
GCAGCTTTCTGGAAATTTCTCTCTGGGGTCCAGGATCCCTGCTACTCCACTGACCTGGAAGAGCTGG
GTACCAGGCCACCCACTGTGGGGCAAGCCTGAGTGGTGAGGGGCCACTGGGCCCCATTTCTCCCTCCATGG
CAGGAAGCGGGGGATTTCAGATTTAGGGATTGGGTCGTGGTGGAGAATCTGAGGGGCACTCTCTGCCAG
CTCCACAGGGTGGGATGAGCCTCTCTTGCCCCAGTCTGGTTCACTGGGAATGCACTGGGTGGGGCTGT
ACACACCTCCAGCACAGACTGTTCCCTCCAAGGTCTCTTAGTCCCGGAGGAACGTGGTTACAGAGAC
TGGCAGCCAGGGAGGCCCGGGCAGAGCTCAGAGGAGTCTGGGAAGGGGCGTGTCCCTCTCTCTCTGTA
GTGCCCCCTCCATGGGCCAGCAGCTTGGCTGAGCCCCCTCTCTGAAGCAGTGTGCGCGTCCCTCTGCTT
GCACAAAAAGCACAAGCATTTCTTAGCAGCTCAGGCCAGCCCTAGTGGGAGCCAGCACACTGCTT
CGGAGGCCAGGCCCTCTCTGTGGCTGAGGCTTGGGCCAGTAGCCCCAATATGGTGGCCCTGGGGAAGA
GGCTCTGGGGTCTGCTGTGCTGGGATCAGTGGGGCCCCAAAGCCAGCCCGGCTGACCAACATTCA
AAAGCACAAACCTCGGGGACTCTGCTTGGCTGTCCCCCTCCATCTGGGGATGGAAGAATGCCAGCCCAAG
CTGGAGCCAATGGTGAGGGCTGAGAGGGCTGTGGCTGGTGGTCAGCAGAAACCCAGGAGGAGAGA
GATGCTGCTCCCGCTGATTGGGGCTCACCCAGAAAGAAACCGGTCAGGCCCATATGGCCCTCCAGG
AACAATCCACATAATACATTCCATCACAGCCAGCCAGCTCCACTCAGGGCTGGCCCGGGGAGTCCCG
TGTGCCCCAAGAGGCTAGCCCCAGGGTGAGCAGGGCCCTCAGAGGAAAGGCAGATATGGCGGAGGCCATG
GGGGCCCCCTCGGCATTACACACAGCCGTGGCTCCCCCTGGGAGCTGCATGGACGCCCTGGCTCCAGGCTC
CAGGCTGACTGGGGGCTCTGCTCCAGGAGGGCATCAGCTTTCCTGGCTCAGGGATCTTCTCCCTCCC
CTCACCCGCTGCCAGCCCTCCAGCTGGTGTCACTCTGCTCTAAAGGCCAAGGCTCAGGAGAGCATCA
CCACACACCCCTCGGGCCTTGGCCTTGGGGCCAGACTGGCTGCACAGCCCAACAGGAGGGGTCTGC
CTCCCAGCTGGGACACAGACCCGGCCGATGTCTGCATGGCAGAAAGGCTCTCCCTTGGCCACGGCTGGG
AGGGTGGTCTCTGTCTCAGCATCCACTAATATTCAGTCTGTATATTTAATAAAATAAATTCAGCAAG
GAAAAAAAAAAAAAAAAA

P193 PROTEIN (PARTIAL)

ERFEKMDRNQGVVITIEFLEACQKDENIMSSMQLFENV

FIGURE 20

Unique domain

Homology domain

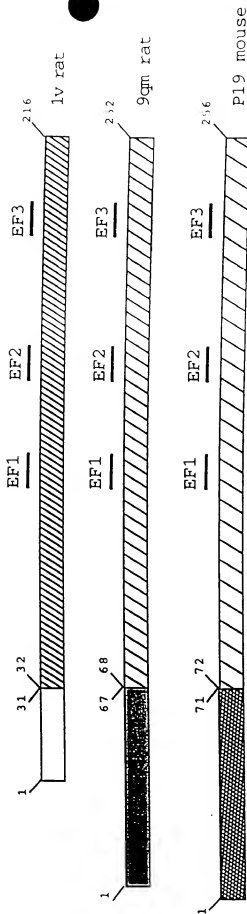


Diagram to indicate homology and uniqueness among rat lv, rat 9qm, and mouse p19 proteins.
Numbers: amino acid positions.

The C-terminal 185 amino acids are conserved (hatched lines). The homologies among the

homology domains are:

rat lv vs rat 9q: 74%

rat lv vs mouse p19: 71%

rat 9q vs mouse p19: 75%

The N-termini are distinct (open and shaded boxes).

The putative calcium-binding EF-hand motifs conserved in all are represented as solid bars

FIGURE 21

Human 9q genomic DNA sequences:

A. exon1 sequence (with introns included):

CCGGACGACAGGCGACGCTCCGGTCCGCTCCGCGCTCAGCTCCGCTGTGCTCGGCTGTGCTGCTACGTTGCTGCT
AGTGTTCCTCTCTGCTCCAGGACCTCCGGGTAGACCTCAGACCCGGGCCATTCCGAGCTCAGGCTCAGGCGCG
GACCTCCCGACGCCCGACAGCAGTAGGCGCGCAGGGGGCGCTGTGAGCGCCCTATCCGGGCGACCCGGCGGCC
CTCTCCACGGCCCGGGCGGGAGCGGGGCGCGGGGGCCATGCGGGGCGCAGGGCGCGAAGGAGAGTTTGTCCGATTCC
CGAGACCTCGAGGGCTCTACGACAGCTCAGGGTGAGTCAGTGACGTGGGGGTGCGGCGAGGGAGGGTGATTC
ATTCTCCAGACCTCTCCGCTCTCCGACCCGGCTGGCGCGCACCACTCTGCCCATTCACAGGCACTCTTA
TGGCGGCTGTGGCGGCGAGGACACTGGGGGTCAAAGCTTTGGGTCGCGAGGGGTTGGGAGGAGCAGGAGGCA
GGTGTGAGAGCGCAGCAGGTGTGGCGTATGTGACACAGGGCTGAGAGGGTGTGAGGTGGAGGGTGTACCGTGC
GTGAGCACTGTCACTTGT
TTGTTGACAGCTAGGGT
GGACCTGT
GTATGAAAGTGGTGTGAACACCAAGTGTGTGAGGGTCTACTTTAGGGTGGCTGTGTCTTTG

B. Exon 2-11 sequence (with introns included):

AGCCNANTGGGTCCNCAATGTGTATGTCATCCTGTTTACTTAGGTACATTTGTATATGTTGTGAAGGAGTACCAGGT
CAATGT
ATCATCTGT
ATCCAGGCAATCCTTGGGTTGGACATCATNTGAGAGGTCCAGCCATGGCATTGAGCGAAGGTACTAGTGACGA
AAGACATTGAGGCACTGCCACCTCATCTTGGCGCTCGCTGTACCGGACGTCCTTAAACCAAGTGCNTGA
GGCTCACTCTATGTGACTCACTGGGCTCCCTTAACCCGATTCACACACCTTGGCATTCTTCTCCCTTAAAT
CTCTCCCGACGCGGTCGCCAGATGGGGTGTATTTGTGACTGGCGGGGAGGGACAGGGAAAGAGGAGGACCGGGA
GTTAATGTGCTTCTGGGGTCTTCTCTCTTNCAGGCCACCTTCAAGGCCACTTCAAGGCCACTTAAACCAAGTGC
TTCTCAAGCTGTGCCAGCTGGCGGCGCCAGAGCCCTGCCCTCAGTCACTGAAAGCAAGTGCCTCTCATGTGCTTC
CGGGGGCGGGGCTCGATGTGTGCGTGGTGTCTGTGATGANTGTGTGCGCTGTGCCGCTGTGCCGAGGCTGCRAGTGT
CATGTTCAGGCTTGATGTGTGGGGGGGCGTGGCCCAAGCTKSGTGTGTGGGGTGGGGCTGCCCGCTGTGCTG
GCGTGTGTATGT
TGCTATGTGTGTGGAGGGCGTGGCCAGKCCCGGGGNGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT
GTGTGGGGGAGGGCGTGGCCAGAGCTGCGT
TGGCGAGGGCGGGTGTGCCAAGCTGGAGCATTAAGNAGGGCGNGGCTACATGTGTGTGTGTGTGTGTGTGTGT
TGTGTGGGCTGGTCAAGTGGNAGCGGT
ACCATTTGACAGGNTGAGGCGTGGGCTGT
ATGTGGCTTAGCTGGGTTAGTGTCTTCAACTCCGTGGCGCGCCCTTCCCAACCGTGTGTGGACCTGTATGTG
TGT
GTTTTCTGTGACAGCTGTTCCTCTGCTGAAGTGTCTCAGTTGAGTGTGTGTGTGTGTGTGTGTGTGTGTGT
CTCAGTTGGGCTTGGCCACCTCATAGGATCATCTGCAATTTTGCAAAACATAAGGCCCGCTTGTAGTATTATTTG
AGCATGCTGT
CTGT
GCTGT
CAGCATTAGCGGCGCCAGGCTCTCCGCGCGCCAGAGCCCGCTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT
GGGCGGGGCGGGGAGGGCGGCTTGT
CAGGATGTGATGTGGGCGGGGCTGGGCTGT
GGGATAGATGGGCTGGCGGGGCGAGGGAGGGGCTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT
GCTGGGCGGATCTGAGTTGGTCCCGAAGGCCCGGAGCTCTGACCTCAGAGCGCCCTCTTGAACGTGTCTTCCC
ACTCTCTCTTTTCAAAACGAAGATGCGGCTGGGGGCTTCCCTTCAACAGGAGGATGAGGGCGCGGGGCGAGCA
CTGAGTGGATCCCTGGCTCTGGGCGCAGGCCAGGCTTGGCGCTGATGACCTCGAAGTGGCATCATCTTTT
CTCTTACTCAGTGTCTTGGCTCGGGGCGCAGGAACTGBCAGCTGGTCTCGGAGCATGGATGGGACCGGGGG
CGGGAGAGGGGTGAATGGGCGAGTGATTGAAGAGGGGTGGGAGGCTGGGATGAGGCGGGGCTCTCTCAGCCG
TCCCGAGCAGCGCTGGACGATGAATTTGAATGTCTACCGCTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT
AGCAAAACCAATTCAGCGCAAGGAGTGTGAGGTCTGTACCGGGGCTTCAAGAACGTGTGTGTGTGTGTGTGTGT

FIGURE 22

ACTCAGCGNGGGTGGGACAGGAGGCCAANCCGGTCCANATTTTCCCANAAAGCATGGCTTNGATGCTTGAGGNG
 CGGGCGGAAGGAGGCAAGGCCCTGAGACTGAACCTTCTAGCTGGAGGTTCTGGGGCGGGGCCAGAACGRAAGTGGCG
 CCTGTAGACTGTCACTTTCGTTTCCATGTTTTATTGTGCACTGGGAAGAAAGCTTCCCTCCCATACATGAGGCC
 ACGTGGTGAAGTCTCTGGAGGCTTGAAGATTATCCCTCTCCCTGGGAGTCTTGGGCCATGGAGGGTGGGGCGGTGA
 ACGGAAGGGGATTTGTCTCTGCCCTCAGCCTTGGTCCCTCTCTCCAGGAATGTCCAGCGGAATGTCAATAGT
 GAGAACTTCAAGCAGATTACTCCAGTTCTTTCTCAAGGAGGTGAGGGGACAGGCCCAAGGGGAAGCAGTGTCT
 CTCTCTAGGCTGAGGAGGGAGGGAATTCTGGAGGAGCTGGGAATGCCAAGGTGATGGGGGTATGGGAGCTCTCT
 AGAGGGGAAGTCTCTCTCTGTGGGAAGCCAACTTCTCCACACTCACCTTCAGACTCCAGCACTTATGCCACTT
 TTCTCTTCAATGCTTTGACACCAACCATGATGGCTCGGTCACTTTGAGGTGAGCTGGGCGAGGTGGGCGAGGAA
 GCTCTGTTCTCTGGAGTTCAGGGCCAGGATCTCAGGCCAAACCCAGAGAAGGAGTTGGGTGAAGACACCCGAGGAC
 ACAGCTCCCTCTGCTCTTCTCCAGGACTTTGTGGCTGGTTTGYCCGTGATTCTTCTGGGGAACCTGATAGTACAGC
 CTTAATTTGGGCTCTCAACCTGTATGACCTTAAACAGGACGGCTGCATCACCAAGGAGGTGAGGGCACTGAAAGGC
 TGGGGTCTGTGGCGGTGATGGGGTGGCGTGCAAGGGGTGATGGGAGGAAATATGACCCACATATGCCACAAAGC
 AATGGGATCAAGGAGGCTGAGGCTCTGAGGAAGGATCTCTCTCTCTGGCTTAAACAGGAATGTGATGACAT
 TGAAGTCCATCTATGACATGATGGCAAGTACACGTACCTGCACCTCCGGGAGGAGGCCCAAGGGAACACGTGGAG
 AGCTTCTCTCAGGTAATGGGAGTGGGTATGGCTGGAAGGCCCTGGAGTGAAGGGAAGGCCAAGAACACGAGG
 GAACCTCACCTGACTTCTGTCTGCTCTCTCTTGGCATCCCTCTGTTCTCCCTGCCTGACCACCTTCTTGCAGAAGA
 TGGACAGAAACAGGATGGTGGTGACCAATTGAGGAATTCATTGAGTCTGTCAAAAGGTACAGCTCCCTGCCCTC
 TACATTACCTGACCTGGACTCAGGCTGATTATGTAATGACAGGGAAAGCTTCTTTGGGAAGAATACCACTCTCC
 ACCTCACCCCATATTTCAATCCTATTCTTTGTGGGAGGCTTACCCCTTCCCTACCTCAGGTCTCTCTGGGCACT
 TCTCTCTCTGCTCTTTGAATGTCCTCTGTGACTCAAGTGTCCCTCTCACTGTCTCTGATAAAGCTCTCTCTCT
 TTCTCTCTTCAATCTGGCTCGCTCACATCATGGCCACAGGATGAGAACATCATGAGGTCCATGCACTCTTTGAC
 AATGTCATCTAGCCCCCAGGAGAGGGGCTCAGTGTCTTCTGGGGGAGCACTGCTCAACCTTAGTCAAGGGGACCT
 CACCCCTTCTTCTCCAGGTTCTATCTCATCTACGCTCTCCCTGGGGGCTGAGGGGATCAAGAGCTTGGGGAATCAG
 TAGTCCAGATCTCTGAGGCTGAAGGGGCGAGAGAGTGGGCGAGGTGCATCTCGGGGGGTGTTCCCAACTCCACAG
 CTCTCACCCCTTCTGCTGCTGACACCCAGTGTGAGAGTGCCTCTCTGTAAGGAATTGAGCGGTTCCCAACTCTTA
 CCCCCTACTCTAGAAACACACTAGACAGATGTCTCTGCTATGGTGCTCCCCCATCCCTGACCTCATAAACATTTCC
 ACCCTCTCGGTATCCATGGAGAGCCTGGGGCCAGATATCTGGCTCATCTCTGGCACTGGCTGGCTCTCAGACGAGCATTGAGAGCCCTG
 TGGGAGGGGGACAAGAAATGTATAGGAGAAATCTTGGGCTGAGTCAATGGATAGGTCTAGRAGGTGGCTGGGGTT
 GAGAATAGAAGGGCTGGACAGATTATGATTGCTCAGGCAATACCAGGTTATAGTCCAAGTTCCACAGGCTGCTAC
 CACAGGCCATCAAAATATAAGTTTCCAGGCTTTGCAAGAACCTTGTCTCTTAGAAATGCCCAAGAAATTTCCAC
 ACCCTCTCGGTATCCATGGAGAGCCTGGGGCCAGATATCTGGCTCATCTCTGGCACTGCTCTCTCTCTCTTTCC
 TGCAATGTGTGGTGGTGGTGTGGTGGGGGAATGTGGATGGGGGATGCTCTGGCTGATGCTGCCAAATTTTCACTT
 CACCCCTCTTGTATCTGCTCCCTGTTTTGAGGGCTAGACTTGAGTTTTTGTCTCCATGTTCTCTATAGACTTGG
 ACCTTCTGAACTTGGGGCTTACTCTCCCAAGTGGATGCTTAGAAGGAGAGGGAAGGAGGAGGAGGAGGAGGAGG
 GCATCTGAACCCAGTGTGGGGGCACTTCACTAGAACTTCAATCAACCTGGGCTCTCCGCCACCCCAAGCAGATAACC
 TCCCTCAGTCTCCAGGCTCTCTCTGTGCTGACTCAATCTACCCAGAGATGCCCTTAGCACACTAGAGGGGACAGG
 ACCATAGGAGCCAGGTTCCAAACCCATTGTGAGCACCCAGCCATGCGGCCACCCCTTAGCACAGCTGTCTGCTGCCA
 TTATGCTTACCTCCCAAGTGGCCAGAATCTGAGGGGAGAGCCCCAGAGAGGCCCTTCCCATCAGAGAAGTGT
 GACTGCTTTGCAATTTGGGCTCTCTATATATTTTGAAGTAAGAAATATACAGATCTAATAAAACACAATGGC
 TATGACAGGCTCGGCTCTGCTCTTTTGTCCCTCCCACTACAAATACTACACACCCCTTAACGATGACACTGCA
 GCTTTTATAGTCCCAAGAAAGTGGCTTCTTTTCCATAGTTGGCATACTTGGCATGAGACTGAGACACAGGCTG
 TGGATGTTGGAACCAACCAACCTCAGGCCCCACATGAATCTCCCTCCACACAGCTGAGAGGAGACAAGGA
 AGGAAGGACAGGACACTGATGCTCCGAAGACTGTGCAAGCAAGCTGTTTTTGTAGTGACATCTCTCAAGTTGAAT
 CACAGATTTCTAATTACAGACTTTTATGTAATCTCAAAGTGTCTTCTTTGAGGGGCTCTTTAAGTCTYTTCT
 TTTTTTTTTTTTTT

FIGURE 22 (cont'd)

>monkey KChIP4 cds = 265
 gtcgaccaccgctcggtgctgtgagcggggggagccccgccagccaaatgccaggatcagcagagagctgg
 acctttagctcaggtctgctctaccccggggaccgcccggcttgcagggtgcagctgaggaactgctcacttttcc
 cccttgcaagctcttgcacagcctgacgttctacgattctgtaataactcctccacacaaaggggtctggagggc
 tgggatgctctgccagctcagaggATGTTGACTCTGGAGTGGGAGTCCGAAGGACTGCAAAACAGTGGGTA
 TTGTTGTGAT
 TATATGTGCACTCTGAAGCTGCTTCAATTTGCTGGGACTGATTGATTTTTTCGGAAGACAGCGT
 GGAAGATGAACCTGGAGA
 TGGCCACTGTGAGCATCGGCCCTGAGGCCCTTGAGCTTCTGGAAGCCCAGAGCAAAATTTACC
 AAGAAAGAGCTTCAGATC
 CTTTACAGAGGATTTAAGAACAATGCCCCAGTGGTGTGTTAATGAAGAAACCTTCAAAGA
 GATTTACTCGCAGTTCTT
 TCCACAGGGAGACTCTACAACATATGCACATTTCTGTTCAATGCGTTTGATACGGACCACA
 ATGGAGCTGTGAGTTTCG
 AGGATTTTCATCAAGGTTCTTTCCATTTTGTCTCCGGGGACAGTACAAGAAAACTCAATTGG
 GCATTTTAATCTGTATGAT
 ATAAATAAAGATGGCTACATCTACTAAAGAGGAAATGCTTGATATAATGAAAGCAATATACG
 ACATGATGGGTAAATGTAC
 ATATCTGTCTCTCAAGAGAGATGCACCCAGACAACACGTGCAAAACATTTTTTCAGAAAATGG
 AAAAAATAAAGATGGGG
 TTGTTACCATAGATGATCTTATTGAAAGCTGCCAAAAAGATGAAAACATAATGCGCTCCATG
 CAGCTCTTTGAAAATGTG
 ATTTAACTgtcaactagatcctgaatccaacagacaaatgtgaactattaccacccttaagtcggagctaccact
 ttgacatagatttcagcttgacactgaagcatattatgcaacaagcttggtttaataaagcaatcccaaaaga
 ttgagtttctcagtataaattgcatctttccataatgccactgagttcggatgttctaaactatttcaatac
 tgtgaatattcaaaagtaatagaatcgtccatagttttatgtattccttagccatgggattattgaggtttcacata
 tcagtgattttaaaataccagtggtttttgctctcattgtatgtattacgctcctaggtttgaatgggttttctaata
 actgacatctgcatttaatttcagaaattaaatttaatttcatgctgaatgctgaatttatactatttaagt
 aaacaataagattactacaattaaacacatagttccagtttctatggccttccctccaccttctattataaataat
 ttatctggtatttttaaacattttaaattatcatcatagatatcagcatatgcttaattatgctaatgaaacttaata
 agcatttaattttccatcatataatagccaaggccctatactatataataatttggattgtttaatcttcacaggct
 gttttcattgtatcatcaagtggaggttcaagacggcatcaacacaaacagagtgatttaccagacatagccaagggc
 aggatctatctccagctatattgtaattgcttaatacaagtaactcetaacagcattaaaggccaatctgctctt
 cccctgacttctcagcatgtttatatacaagccattcaggacaaagaaacctgactacccactgctctactagg
 aacaaacaaacagcaagcaaaattcacttgaagcaccagtggttccattacattgcaactactaccaagattcagta
 gaaaataagtgtcacaactaatccagattacaatatgatttagtgcataaaaatccaacaattcagattatttt
 aatcatctcagccacaactgttaagttgccacattactaaagacacacacatgctccctgtttgtagaatatcacaaa
 gaccaagaggctacagaaggaggaatttgcactgtcttgcacaataaatcaggatctctctggtgtagagatag
 gatgttgaagctccctgctatcacagggtgtagaataaagagtagtacaatacatgtacactgaaatttggccatcgg
 tgtttgttaaacctaatgtgcacatttgtattcaaaaagaaaaataaaagcaataaaaigtwaawaamwmwaaa
 aaaaaaaaaa

>monkey KChIP4
 MLTLEWESEGLQTVGVIVICASLKLHLGLDIFSEDSVEDELEMATVRHRPEALELLEAKSFT
 KKELQILYRGFKNE
 CPSGVVNEETFKEIYSQFFPQGDSTTYAHFLNFAFDTDHNGAVSFEDFIKLSILLRGTVQEKLNW
 AFNLIDYNDGYIT
 KEEMLDIMKAIYDMMGKCTYPVLKEDAPRQHVETFFQKMDKNKDGVTIDEFIESQCKDENIM
 RSMQLFENVI

FIGURE 23

>monkey KChIP4 C terminal splice variant cds = 265-966
 gtgaccacagcgctccgggtgcgtgtggttcgggggggagcccccgcagccaaatgccaggatcagcatgagagctgg
 acttttagtccagggtctgtctacccccgggggaccgcccgtttgcagggtgcagctgcgaggaaactgtcacttttcc
 cctttgcaagttcttttccaaagcctgacgtgtgctacgattctgtaattaaactccctccacccaagggtctgaggc
 tgggatgctctccagctcagaggtATGTTTGACTCTGGAGTGGGAGTCCGAAGGACTGCAAAACAGTGGGTA
 TTGTTGTGAT
 TATATGTGCATCTCTGAAGCTGCTTCATTGCTGGGACTGATTGATTTTTCGGAAGACAGCGT
 GGAAGATGAAGTGGAGA
 TGGCCACTGTCAAGGCATCGGCCTGAGGCCCTTGAGCTTCTGGAAGCCCAGAGCAAATTTACC
 AAGAAAGAGCTTCAGATC
 CTTTACAGAGGATTTAAGAACGAATGCCCCAGTGGTGTGTTAATGAAGAAACCTTCAAAGA
 GATTACTCGCAGTCTT
 TCCACAGGGAGACTCTCAACATATGCACATTTCTGTTCAATGCGTTTGATACGGACCACA
 ATGGAGCTGTGAGTTTCG
 AGGATTTTCATCAAAAGTCTTTCCATTTTGTCTCCGGGGACAGTACAAGAAAACTCAATTGG
 GCATTTAATCTGTATGAT
 ATAAATAAAGATGGCTACATCACTAAAGAGGAAATGCTTGATATAATGAAAGCAATATACG
 ACATGATGGGTAAATGTAC
 ATATCTGTCTCAAAGAAAGATGCACCCAGACAACACGTGCAAAACATTTTTTCAGGCTGTTT
 TCCATTGTATCATCAAGT
 GGAAGTTCAAGACGGCATCAAAACAAAACAAAGGATGTTTACAGACATATGCAAAAGGGTCAGG
 ATATCTATCTCCAGTATA
 TGTTAAAtgcttaataacaagtaactcctaacagcattaaagcccaaatgtctctttcccttgactctcttacagcatg
 tttatatatacagccattcaggacaaagaacacgttgactccccactgtctactaggaaacaaacaacagcaagcaaaa
 ttacttttgaagcaccagtggttcattacattgacaactactaccaagattcagtagaanaataagtgctcaacaacta
 atccagattacaatatgatttagtgcatacaaaatcacaacattcagattttttaaactatctcagccacaactga
 aagttgccacattactaagaacacacacatctccctgtttgtagaataatcacaaagaccaagaggtctacagaaggag
 gaaatttgcaactgtctttgcaacaataaatcaggtatctattctggttagagataggatgttgaagctgccctgcta
 tcaccagtgtagaataaagtagtagacaatacatgtacactgaaattgccatcgctgtttgtgaactcaatgtgc
 acatttggatttcaaaaagaaaaataaaagcaaaataaaatgttwawaamwmwaaaaaataaaataaa

>monkey KChIP4 C terminal splice variant
 MLTLEWESEGLQTVGIVVHCASLKLHLLGLIDFSEDSVEDELEMATVRRPEALELLEAQSKFT
 KKEQLQILYRGFKNE
 CPSGVVNEETFKELYSQFFPQGDSTTYAHFLNAFDTHNGAVSFEDFKLSILLRGTVQEKLNW
 AFNLIDINKDGYIT
 KEEMLDIMKAIYDMMGKCTYPVLKEDAPRQHVETFFQAVFHCIKWKFKTASNKTRMFTDICK
 GSGYLSSSIC

FIGURE 24

KChIP1_1v -----MCAVMGTF-----SSLQTNQ-----
 KChIP2_9q1 MRGQGRKESLSDSRDLGSDYDQITGHPGPPTKALKORFLKLLPCCGPQALPSVSETLAA
 KChIP3_P19 --MQPAKEVTKAS--DGSLLGDLCH--TFLSKRKGCKWQRPRLSRQALMRCCLVKWI
 KChIP4_352 ---MLTDEWESEGLQTVGIVVITCAS---LKULHLLGLTDFSE-----
 KChIP4_231 ---MLTDEWESEGLQTVGIVVITCAS---LKULHLLGLTDFSE-----
 hsnscspara ---HBVDSISAQEEASSTGSFLYAQN-STKRSIKERLAKLLKCS-----

KChIP1_1v -----SMDKLEDELENTMVCCHRPEGLELEAQTINFTKRELQVLYRGFKNECPs
 KChIP2_9q1 PASLRPHRRLRLDPDSVDDDEELSTVCHRPEGLELOEQTKFTRKELQVLYRGFKNECPs
 KChIP3_P19 LSSTA PQ-----GSDSDSELELSTVRRHPEGLDLEAQTQKFTKKELOSLYRGFKNECP
 KChIP4_352 -----DSVEDELEMATVRRHPEALELEAQSKEFTKKELOILYRGFKNECPs
 KChIP4_231 -----DSVEDELEMATVRRHPEALELEAQSKEFTKKELOILYRGFKNECPs
 hsnscspara -AAKTSSP---AIONSVDELEMATVRRHPEALELEAQSKEFTKKELOILYRGFKNVRTF

KChIP1_1v GVVNEDTFKQIYAQFFPHGLASTYAHYLFNAFDITOTGSMVFEDFVIALSILLRGTVMEK
 KChIP2_9q1 GIVNEENFKQIYISOFFPOGDSSTYATFLFNADFTHHGVSVSFEDFVGLSVILRGTVMEK
 KChIP3_P19 GLVDEETPKLIYAQFFPOGDAITYAHFLFNADFDCNGATHPEDEFVGLSILLRGTVMEK
 KChIP4_352 GVVNEETFKREIYSOFFPOGDSSTYAHFLFNADFTHHGAVSFEDFVGLSILLRGTVMEK
 KChIP4_231 GVVNEETFKREIYSOFFPOGDSSTYAHFLFNADFTHHGAVSFEDFVGLSILLRGTVMEK
 hsnscspara RLTLPSHNSORSIEK-----

KChIP1_1v LKATFNFLYDINKDGYITKEEMMDIKAIYDMMGKCTYPVLKEDAPROHVDVFFOKMD
 KChIP2_9q1 LNWAFNLYDINKDGYITKEEMLDIMKSIYDMMGKCTYPVLKEDAPROHVEPFQKMD
 KChIP3_P19 LKAFNLYDINKDGYITKEEMLDIMKSIYDMMGKCTYPVLKEDAPROHVEPFQKMD
 KChIP4_352 LNWAFNLYDINKDGYITKEEMLDIMKAIYDMMGKCTYPVLKEDAPROHVEPFQKMD
 KChIP4_231 LNWAFNLYDINKDGYITKEEMLDIMKAIYDMMGKCTYPVLKEDAPROHVEPFQKMD
 hsnscspara -----

KChIP1_1v ---KNKDGIVTLDEFLESCQEDNIMRSLOLFQNVV
 KChIP2_9q1 ---RNKDGVVTTIEEFIESCOKDENIMRSLOLFQNVV
 KChIP3_P19 ---RNKDGVVTTIEEFLEACQKDENIMSMOLFENVV
 KChIP4_352 ---KNKDGVVTTIEDEFIESCOKDENIMRSLOLFQNVV
 KChIP4_231 IKMKFRTASNKTRMTITCKGSGYLSSTIC-----
 hsnscspara -----

Figure 25

Rat 33b07 protein

MNGVEGNELPLANTSTLSALVPEDLDLKQDPLSEETDTVREMEAGEAGAEAGGSAFDSHCETPQLCLPVAENGCAAAAEGLLEDGLSSSRGGAPLASVAANDSNKNGCOLAGPLSPAKPKTLEASGAVGLSQMMFGPKTKVMTTHGAI SATTKREGEAGAAAEKKGVQKEKKAAGGGKDETRPRAPKINNCMSLEAIDQELSNVNAQADRAFQLERKFGMRRLHMQRRSFIIQNI PGFVTAFRNHPLQSPMISGQDEDMRYMILEVEELKHPRAGCKFKFIQSNPYFRNGLVKEYRRSSGRVVSLSPTIRWHRGEPDAIHRNREGNTIPSFNNWFSHSLLEFDRIAEIIKGLWSNPLQYLYMGDGERGRGVVPVPPQPVESPSFRFQSG.

Rat 33b07 DNA (coding: 85-1308)

GGTGGAGCTAAGCACTCACTGCGGTGCTGCCCTGCGTCTGCAGAGAACAGGAAAGCTTCTGCAGGGCTGTCAAGTGC
CAAAATGAACGGCTGGAAGGGAACACGAGCTCCCTCTCGCTAACACTCGACCTCCGCCCTTGCCCGAAGATCTGG
ATCTGAAGCAAGACCAAGCCCTCAAGCGAGGAACTGACACGGTGGCGGAGATGGAGGCTGCAAGGTGAGGCCGCTGGGAG
GGAGGCGCTCCCGGATTCGGAGCACTGCGACCCCGAGCTCTGCTCCGAGTGGCTGAGAATGGCTGTGCTGCCGAGC
GGGAGAGGGCTGGAGGATGCTGTCTCATCAAAGTGGGGACGCAACCTTGGCGTCTGTGGAGCCACGACAGCA
ATAAAAAAGTGTGAGCTTGCAGGCGCGCTCAGCCCTGTAAGCCAAAACTCTGGAAGCCAATGGTGCAGTGGGCGCTG
GGTCCGAGATGATGCCAGGCGGCAAGAGACCAAGGTAATGACTACCAAGGGCGCCATCTCGCATACAGGCCAAGGA
AGGAGAAGCAGGGCGCGCAATGCAGGAAAGAGGGGGTGCAGAAAGAAAAAGGCAGCTGGAAGAGGGAAGACAGGA
CTCGCTAGAGCCCTAAGATCAATAACTGCATGGAATCCCTGGAAGCCATCGATCAGAGCTGTCAAAATGTAATGGG
CAAGCTGACAGGGCCTTCTCCAGCTGGAACGCAAAATTTGGCGGATGAGAAGGCTCCACATGCAAGCCCGAAGTTTCA
ATCCCAAACTCCAGGTTTCTGGGTACAGCGTTTTCGGAACACCCCGCAACTGTCAACCGATCATCAGTGGGCAATG
AAGACATGATGAGTACATGATCAATTTAGAGGTGGAGGAGCTTAAGCAACCAAGAGCAGGGTCAAAATTTAAGTTATG
TTCCAAAGCAACCCCTACTTCCGAAATGAGGGGCTGGTCAAGAGTACGAGCGCAGATCTCAGGTCAGTGGTGTGCT
CTCTACGCCAATCCGCTGGCACGGGGTCAAGAACCACAGGCCCATATCCACAGGAATAGAGAAGGGAACAGATTCCT
GTTCTTCAATTTGGTTCTCAGACCACAGCCTCCTAGAATTGCACAGAATAGCTGAAATATCAAGGGGAGCTTTGGTCC
AATCCCTACAACTACTCTGATGGCGGATGGGCGACCGAGAGGATTCGAGTCCACCAAGGCAGCCAGTGGAGAGTCC
CAGGTCCTTCAGGTTCAGTCTGGCTAAGCTCTGCCCTGTGAGAAGCTCTTACAGAGAAGTCTTACCACTTCTCAGC
TTGGTAGCAGCATCAGCCCTCTGTCTGCTTTCTCTCTCTGGATTGTGTCCTTTGGTTCTTCTAAGTCTCCGGTAGTT
TCAGGTTTGGCTTCCAGTCTTGTCTTTCTTCTCTTGGCCATCAGCATGCTCCGATAGTGTAAATGGTGTCCAA
GTGCATGGCTCCAACTGCTTCTATGCCAAGCTCAGCTGCTAGTTTGTACTGCTTTCTTTTTCATGCTGGCTGGTTCT
GCTCTGATCTTCTAGTGTTTTGTGTTCTTTTAAAAAGTGGTCTCTATCAAAAAGAAAGCTTGACATATCCTTACCA
GAAGTACGCAGATTTTCACTGCTGTTCCGATATCTATGCTACTGTGAAGAACTGAGGTTCCGCACTCAAGATGGGAC
TGATATCCCAATCAGCCATCAGGCCAAGGACATTCAGAGCTGTACCAACTGATCTAGCTGCTTCTCTGGGCTTTG
CAATTTACCTGCTTTTATCTATAGAATGAGAGGTGGCTGTAAGTGACTACTAGTAGAAGTGAAGTATAGGTGAG
GAGTGTGTTCTGTCAACCATGTTCTGTACCAATGCATCATGATCAGCTTGGATCAGCTACTGACTGCTGATATTTCT
TACCCCCAACCAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

FIGURE 26

Human 33b7 (106d5) DNA (cds) (ring: 88-1332)

GGGGTGGTCTAGACGTTTGGGACAGAGCTCGGCCGCTGGGAGGACAGGAAGTCTCCCTCTCCCACTAGTCTGACTTC
 TTTCAAAATGACGGGCTGGATGGGGGCAACAGGCTCCCTCTCGGCAAAACGGGGGCTGGCTGCTCCGACCATGCTG
 CAGAGAGTCCGACCTAGACAGCTGCGCAAGGCTCCGTGAAGAAAACGAGGCGACACAGGTGATGGCGAACAAGTGGG
 GCGAGCTCGGACCGCTGGAGAGGGGGTGCATCCAGGATCTCTGCACTGTGGCCCCGGCTCCGGCTCCGAGCTG
 CGGAGTCCGGCGGGTGAAGAGGAGACACGGCCCGGAGGAGGAGTCTCCACTCTCTACGAAAGGCTTGGAGAGGAGCTCT
 CCGCGAGGCTGCTGACAGCAGCCAGAAAATGGCTGTGAGCTTGGAGAGCCCCGTGGCCCTGCTGGGACAGAGGCTCTA
 GAGGCTGTGGCGAGGGGCTTGGGCTCTCAGATGATACGGGGAAAGAGCCAGGAAGTGACGACATAAAAGACCTG
 CATCTCGGACAGCTGGAAAAGGAGGAGGAGGAGGAGGCGGCGATGGAGAAAAGAGGATGTCAGAGGAGAAAAAG
 TGGTAGAGGGGTGAAGAGGAGACACGGCCCGGAGGCCCCAGAGTCAATACTGATGGACTCACTGGAGGCTCGAT
 CAAGAGTTGTCAAAACGTAATGCCAGGCTGACAGGGCTCTCTCAGCTTGAGCGCAAGTTTGGCGCATCGGAAGGCT
 CCACATGCGCGCAGAGTTTTCATTATCCAGAATATCCCAAGTTCTGGGTACTGCTTTTCAAGACACCCCGAGCTGT
 CACCTATGATGACGTGGCCAGATGAAGACATGCTGAGGTACATGATCAATTTGGAGGTGGAGAGCTTAAACACCCAGA
 GCGAGCTGCAAAATCAAGTTCATCTTTCAAGGCAACCCCTACTTCGAAATGAGGGCTTGTCAAGGAATATGAAGCGCA
 ATCTCTCTGGCCGGGTGGTCTCTTTTCACTCCAATCCGCTGGCAGGAGGCGCAAGACCCCAAGGCTCATATCCACAGAA
 ACCGGGAAGGAGAACACTATCCCTAGTTTCTTCAACTGGTTTTCAGACCAAGGCTCTAGAAATGACAGATTCGAGAG
 ATTATCAAGAGAGACATCTGGCCCAATCCCTCACTACTACTGATGGGTGAAGGGCCCCAGAGGAATTCGAGGCG
 ACCAAGCGAGCCGAGTGGAGAGCGCCAGATCTCTCAGGTTCCAGCTGCTGCTAACTCTGCTCTGAGGAAGCTCTGCA
 AGTTTCTTACCACCTCTCTTGGACCTATGCTTGGCCAAAGCATGACGCTTCCATCTGCTTTCTCTCATCTGTG
 ATTATCTTTTCTTGGTCTTAAATCTTCAAGTATCGGTTGCAAGATTTGGTCTTACCTGCTGGGCTTCTCTCTCT
 GGGCTCTCATGTTTCTGCTATGTTTAACTGTTTCAAGTGCATGGCTTCTACGGCTCTCATGCTCAAGGATGATA
 CTATAGATGTTGTAAGTACTGCTCTTCTTGGATGGCTTGGACCTATCTGTGACCTAGCTCTTCCCAATCTTAA
 TGGTCTCTGACACCAAGATCTTGATACATTTTCAAAATACTGATTGGGCTCTCATCTTTATGCTGGTGTGCTCT
 ATACCTCATCTTATTTGTAAGCTATTGGGTATTACCACTGCAAGCAAACTGATATCTTAAACCGGCACTCAACCA
 AATTGGACATTCGAGCTACCACTACCTGGATCCAGCTGCTCTTCTGGGCTTGGCCATCAACCTACCTGGTATCTGA
 TAGAACAGCTGGT
 GTTGTCTGACCTTCTGTTGTAATCTTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT
 GGGAGCTCAGACCAACCCCTACCAACAGGATGGGAGTAAATGTCAGACAGGCAAGAGCAAGGCTGGAAGAGGCTGGA
 CTGAGCTGAGCTGATCTTGTGATCTGAGCTCTGAGCCACCAACCTCTTAAATGAGCAACTTCTTAGGCAATTTCTCT
 CCGCTCGACCCACTCTGAACATGACAAAAGTTGCCAGATGGGGCTTGGAGAGAGATTTCTTGGAAATGTGAGACT
 TGTATGCTCTGTCTTCT
 CTCTGAGAGCTTTTATGCTATTAAACAGAAAACCAACTGGCAAGCAGGCTTTTGTGTTAAATTTGCTCTCTCTCTCT
 GTGTTCAGAGAGAAAGTTATGATTAATGGGCTCAGATCTCTTATTGCCCTTATCTCCACCAACCTCTTTTATGCA
 ATGTCTCGAAAGTTTCAAAGGAGACCTATAGTTTAAATGTTAGTATTAGGCAAGTGTAAATAGGACAGATTTTGA
 TATCTCTTTTACCACCTCACTCTACCAAAACCTGTGATTCTTCTGAGTTTATGTTTGAAGAGCTGGAAGAGAGAG
 AGGGCTCCAGAGTATGGGTTGAGGAGGCTTGAAGGCAAGGCTTGTGATGTGAGCAAGGCAACCAACTTAGCC
 TCACTCACTTTTCAAAGATGGAATTTCTTTTGGGCTTGGAGCTCTTAGGTAAGCTTTTGTAGTCACTCTCT
 TCTCTTGTACTATTTTTCTTCT
 AGCTTCTGCAATTTCT
 TTAGGGAGGATAGGGGATGTTGATCATCTGTGGGATTTTCAAGGCAAGTTCAGATAGTGGGAGACATGATGCGCTCAA
 GGCTTAGTATGATCATGCTGTGGTGAATAAGACATCCACATACCTTTTCTCTTTGGTTTGAAGGCTTGGCTCT
 AGCTACTCGAGGTTTAGGAGGTCTGAACACACAGTGGAGGTTAATCTAGGTTGGGAAATGAGTAAAGTCCAGA
 GCGAATAGAGCTGCTGTGGGCTGGGTTTGGAAAGGCTCAGGAAAGACCTCGAGGATCAGGCTGGGAGGAGGCG
 CCTAGAGTCTCTCCAGGAGAGGAGGCTGGGTTTAAATAGCATGCTTGGAGGAAGATTTCTCTAATTTTCTCTAA
 GTCTCTGAAATCCAGGATGATTTTGTGAACAAATGTAGCTAGTGTCTCTCAATTTGAGGCTGAGGCTGACCTTTA
 TATGCTGGAAGATTAATGCTATATGCTCTTATGCTACTGTTTGTAGTAAATCAATTTCTCTCTGTTTCAAGCT
 ATGACAAATGATGTTTACGAGCTGCTTTTCTTAAATTTACCAACTGTGCAAAATACCAATTTTGTGCTGTG
 CAGTATGAGAAATTCAGTGAATATTCATTAATGATGCTTGTCTCTGTTTCATATGCTCTATTTCTAGAA
 ATATAATGATGTGATCTTCAATAGCTGAATATTTCAAAATATAGCTATGCTTGTGAAGAAATACCTCAAAAG
 AAAATACGACCTTGTGTCTTACTGATATTTCTGCTAGTATGATCTGACATTTGCTCTACGAGGTGATG
 TACGAGTGAATTTCTCTGCAACTCAATGATCATTTAGTACTTTTCTCTCCATGCTCTTGAAGGAAAAATAAG
 TGTCACTACCGTATTTCTGTTTCTATCAAAAAATAAAATAATTTAAAAACAACAAAAA

Human 33b7 (106d5) protein

MSGLDGNKFLPAGTGGALAPDHASGDPLDQCQGLRETEATQVMANTGGSLVETVAEGGASQDPVDCGALRPVPAVS
 RGGAAATGAGQADAPSTTGLLEAASAAEADSSQNKNGQLGPRGPAQKALEACGAGGSGQSPGPKKAEVTTTKRAIS
 AAVEKEGEGDAEAEKKVYQEKVAGGVKEETRPAPKINNCMSLEADQELSNVNAQADRAFLQLERKFGMRRLHM
 QRSSFIIQNIQFQWVTAQRNHPOLSPMISQDQEDMLRYMINLEVEELKHPRAGCKFKFIQGNPIFRNGLVKEIRSS
 GRVSLSTPRHWGDDAFHHRNRENTIPSFNFWSDHLSLEFDRIAEIIGELVFNPLQYLVMGEGPRGIRGFP
 QPVELARSFRFQSD

FIGURE 27

Rat lp protein (partial)

LKGARPRVVNSTCSDFNHGSGALHIAASNLCLGAACKLLEHGANPALNRKQVPAEVPDPMDSLDKAEALVAKELR
LLEEAVPLSCTLPKVTLIPNYDNVPGNLMLSALGLRLGDRVLDDGQRTGTLRFPGTTEFASGQWVGVEDEPEGNKGSV
GVRYFICPFKGLFASVSKVSKAVDAPSSVSTPTPTPMDFSRVTGKGRHKKKKSPSSFLSGLSQOREGAKAEVGO
QVLVAGQNRDCFLNEORLCRSLRLVNH

Rat lp DNA (partial, coding:1-804)

CTGAAGGGGCGAGGCCAGGGTGGTGAACCTCCACCTGCAGTGACTTCAACCATGGCTCAGCTTCGCATCGCTGCCTC
GAATCTGTGCTGGGGCGCGCAAATGTTTACTGGAGCATGGTGCCAAACCCAGCGCTGAGGAATCGAAAGGACAGGATC
CAGCGGAAGTGCTCCAGAGCCCATGGACATGCTCCCTTGACAGGCAAGGAGAGCCCTGGTGCCAAAGGAATTCGGACG
CTGCTAGAGAAGGGCTGTGGCACTGTCTGCACCTTCTCTAAAGTCACACTACCAACTATGACAACGTCCCAAGCAATCT
CATGCTCAGCGGCTGGGCTGCGCTAGGAGACCGAGTGCTCTCGATGGCCAGAAGACGGGACGCTGAGGTTCTGG
GGACCACCGAGTTCCGAGTGGCCAGTGGTGGGCGTGGAGCTAGATGAACCGAAGGCAAGAAGCAGCGGACGCTGGG
GGTGTCCGGTACTTCATCTGCCCTCCCAAGCAGGGTCTCTTTGCATCTGTGTCGAAGGTCTCCAAGGCAGTGGATGCAAC
CCCTCATCTGTTACCTCCAGCCGCCGCACTCCCGGATGGACTTCTCCGCTGAACGGGCAAGGCCGAGGGAAACACA
AAGGGAAGAAGAAATCCCATCTTCCCATCTCTGGGACGCTGCAGCAGCTGAAGGGGCCAAAGGTGAAGTTGGAGC
CAAGTCTCTGTGGCAGGCCAAGCAGGATTTGTCGTTCTATGGGAAGACAGACTTGTCCAGGTTACTGGTATGCA
TTGAATGGAGAGCCCAAGGCAAGCATGACGGCTCTGTGTTCCGGTTCGGTACTTTACCTGTGCCCCAGGCAAGG
GTCTTTGACCCAGCATCTGATCCAGAGGATTTGGTGGATCACTGATCCCCCTGGAGACAGTGTGGAGCAAAAAAGT
GCATCAAGTGACAAATGACAGGCCAAGCAGCACTTCACAACTGCTCCGACCCCAAGGACATTCATCAGAGAACTCTA
TCTCCAGGTTACTTCTCTGCTGCTGGTTTCTTGGATGCTGAGGCGGAGATGCACTCTTAGAGACTGGATACCTGACA
CAGAGACAGAGTCCCTCTAGCATCTCTGACACAAAGGAGACCCAGTCACCTTAAGATAGAGATTTCCAGTGACACTC
CAGAAATAGAAAACCCCTTAGCCAGCCCTCGATTACTAGAGTCCCATTTATTAACAGATCTCCCATGACGATCCCCCAAT
ACAGACTCATGTTATCCCAAGAGAGATTCCTTGAGTAGCACTTCAGGCTAGTCCCTGTCCCTACCCCTCAGAGCAGA
TTTCCCCCAATAAATCTTTCCACATCACCAAGGGATGCTGACCTCTCCAGACAGGAGCTTGTGAGTTACCAAGTGG
ATTAGAGTCCCATGAATGAAGACCCCCCAAGCCCGGTTCTCTTAAGCATAGGTCACTACCTCAGAAATAGCCAGGCACA
TCACATCCCCATGAACATCAGTCTCTCAAAATGGCGTGAGGTCACTAGAAAGACCTTATCTCTCTCTCTCTCA
GAGATGCCCTCAATCACTTAAGTCCCTGTTCTACCCCTGAACAAAGACACTTAATTAACCGGCCCACTCACCTCAATTA
CAAAACACAAATCGCTCTGGAAGCATGAATACAGGACAGCAAGTCTTCTGCCCTCTGCACCTCTGAGAAACCCCGAG
TGCTCTGTATGAAGCCCAACACATGGCCCAAGTCCCTGTGCTGGCCAGGCTCCCAAGAAATTTCTATTTTTTAA
GTAATAACTTCCCCCTTTGGGGGATCCCCAAATTTGAGACCCCATTTAGAACACTGGGGAGTTCAAAATCCAGAG
AGAATATATATATATATATATCCCAATTCCCATGCTTCCAGGCCCTACAATCTCTAGAAGACCCCAAAATTTCTAATC
CCAGGACTTCCCCCTACCAAGTCACAGAATCTCAAAATCCCAAGGAATCCCAAACTTAAGATACCAATCCCAACCCCTC
AGGAATCCCCCAACACAGGTCTTAGGACCGGAGGAGGAAGTCTGTTGCCAGGAGAACCTCCAGGCTCTCAGGGCA
TCTCAAACTCAATGTGACAGGCGCCAGGCTCTAACAGGACCCCAATCATGGAGTCCCTACTTCAATCTACCTTCTGGT
TGTGCTCATGATCTTTAATTTCCCACTTCCAACTCCATGGGCCCCACCTCAGGGAACCCCAAGATCCAAATCTC
TGATTAATATATGTGACAGGCGCCAGGCTCTAACAGGACCCCAATCATGGAGTCCCTACTTCAATCTACCTTCTGGT
CACAGTCCCAAGCACTAAATCTGAGTCATTGGCCCAAGGACTTCACAGCACTGGGCGAGCTAACAGCTCAGGGA
GAACCTGAGGCGCCGTGGGCTCAGAGCAGACTGGGCGCTGACCAACAGGACAGCTCACGACTGCCCTTCACTGCA
TGTCCTTAACTCAGCATGACTCTGCTCTTCAATAAGACGTTTCTATGGCAAAAAAAAAAAAAAAAAAAAAA
AAA

FIGURE 28

Rat 7s Protein (partial)

ADSTRWAEALREISGRLAEMFADSGYPAYLGARLASFYERAGRVKCLGNPEREGSVSIIVGAVSPFGGDFSDPVTSLTG
IVQVFNGLDKKLAQRKHFFSVNKLISYSKYMRLDEYDKHTEFVPLRKTAKELIQEEDLAEIVQLVGKASLAETDKI
TLEVAKLKDDFLQQNGYTPYDRCFEYKTVGMLSNMISFYDMARRAVETTAQSDNKTWISIIREHMGELIYKLSMMKF
DPVKDGEAKIKADYQQLLEDMQNAFRSLED

Rat 7s DNA (partial, coding: 1-813)

GCTGA¹CTTACCTCTAGATGGGCTGAGGCCCTCAGAGAAATCTCTGGTCGCTTAGCTGAAATGCCTGCAGATAGTGGATA
CCCTGCATACCTTTGGTGGCCGACCTGGCTTCTTTCTATGAGCGAGCAGGACAGAGTGAATGTCTTGGAAACCTGAGAGAG
AAGGGAGTGTACGATTGTAGGAGCAGTTTCTCCACCTGGTGGTGAATTTCTGATCCAGTACACATCTGCTACTCTGGGT
ATTGTTACAGTGTTCTGGGGCTTGGATAAAGAGTACGTACGCGCAAGCACTTCCCGTCGGTCAACTGGCTCATTAGCTA
CAGCAAGTACATGCGCGCCCTGGACGAGTACTATGACAAACACTTCCAGAGTTCGTGCCCTCTGAGGACCAAGGTAAAG
AGATTCTGAGGAAGAGGAGGATCTGGCGGAAATCGTGACGCTCGTGGGAAAGGCGTCTTTAGCAGAGCAGAGTAAATC
ACCTCGAGGATGACAAACTTATCAAGATGACTTCTTACAAACAAATGGGTACACTCCTTATGACAGGTTCTGTCCATT
CTATAAGACGGTGGGATGCTGCCAATGATTTCATTCTATGATATGCCCCGGCGGCTGTGGAGACACCCGCCGAGA
GTGACAAATAGATCACATGGTCCATTATCCGTGAGCACATGGGGAGAGATTCTCTATAAATTTCTCCATGAAATTCAG
GATCCAGTGAAGSATGGCGAGGCAAGATCAAGGCCGACTACGCCACAGCTTCTTGAAGATATGAGAACGCAATCCGTAG
CTCGGAAGATTGAACCTGTGACTTCTCTCCCTCTTCCGACGCTCATATGTGTATATTTTCTGAAATTTCTCATCTCCA
ACCCCTTGTCTCCATATTGTGACGCTTGGAGACTAGTCCCTGTCGCTTCTCGTTCTATTTTCTGCTTTCTTTGGTAGGTC
TTATAAACAACATCTCTGTGCTCCGCTGTCTGAAGGAGTCTCCGACCTTTGTCTGAAGTGTGTGAATGTAGTGACATATG
ATACACAGCTGTATACACACATTTGAACATATAAGTTCTGTAAACTTGTATGTAAGTGACTACCCCTTCCCTCTCTCC
AGTAAACTGTAAACAGGACTACTGCTATGTGCTTATGGGATGGAAGGCCAGATCTCCATACCGTGGACAGGTACATAA
GGAACTAGACACTTGTCAACTTAGTGTGTTGAGTAACCAATTTGACAGGAGTATTTCCATTTAAAAACAAGAAAT
AATGTTCCAATATTGTTAGCTTCCCACTATCAATCAGGACTGTTGTGGCGCACTTGGGAACTATTTGTTTCTCTAA
CAGAGCTTTGCAAGGCTGAACGTAATAGATAAATCAGTTCCCTCTGAAGTGTGAAGTAAAAAGAGAGCTAGGTGGTCA
TACCAGTCTCAGGAAATATTTGTTTCTTTCACTGGCTCAGAAAGCTCTCAAAGTACCTGGCTCGTGAAGCTCTCAT
CTGTTATGACAGCAGAGAGGTTCTAAATTTAACTGTGACAAACAAAGAAAAAGATGCAATTTTCTTATATTTA
GTGAGATGAGCTCAGAGTGGGAGGGTGTGGGTTAGAATACACAAAGGACAGCAGTGGCTGAGAGAGTGTGGCG
GGGCGCAGAGCGGCAATTTTTCACGAGTACGCTGTGGCGTGTCTTTGCTTTGACACTTGAAGACGACGCTGAGT
TACCAGTCTCAGGAAATATTTGTTTCTTTCACTGGCTCAGAAAGCTCTCAAAGTACCTGGCTCGTGAAGCTCTCAT
CTGTTATGACAGCAGAGAGGTTCTAAATTTAACTGTGACAAACAAAGAAAAAGATGCAATTTTCTTATATTTA
TGTGTTGTTGTTTAAATTAATTCATATTTGCATAAGCAGGCTCGCTTCTGAGAGCTGGAGATCGTGCCTCTCA
TCACTCTCCGGGGTATATGCTGGCGCCATGCTACCTCTCAGAGGGGAGGGGATGACATGGCTACACCTCAAA
GTACACAAGGCTAACGACAAAGATTTATTTAAGCCTTGGTATGTTGTTAAATATATAGTGGTGCATTTCTTATGTT
CTTTGGGTAGACATAGTATACACTTCAGATGTAATGTGTAATCTCTGCTAGTCAATGCTACACGATAGCTGCTATT
CAAGAAGGATATCTTCCACATAACAAATTTAAAACTATTAAATCAGATATGATATGCAATGACTTGTGAGAGGTGG
ATTAACGGTGTCTTAATCAGTTGCTTCCAATATGGCTCTGATCCAGAAGCCCTGACTAGTGGAGATGAGAAAGATT
TCAAAACCTGTCTGCTACACCTACCAGCAACCTAGGCTTGTGATCAGATGAATGATCCCAAGAACTACTTGAACGAG
TGTGTTTGTGTCTGCTGATGTGAGATGTGGCTTCTCTCCCTCTGAGACTGTTGATGATGACTGTGAAGAGTTACA
GAAACACGCTCAGATTTTACCGTAACTTTCCTCTGCCACACCTGTAGAGTTTCAAGATTTGCTCATGATGCTGCT
TTGCTAAGGATGTGTTAAATATAGCAGCTTTTAAAGATTATGCAGTCTCTATTTATTTGTCGCTGTGCTGCTTA
AGTGCAGGCGGTTAAACAAGTTTCATATGATTTTCCAGTGTAAATCTATACCTGATGCTTGGAGAGCTCCATCT
TGACAAATGAATAGAGAGGCTATATAAATGCCTCTATCTTAAAGTTTCACTATCTTATGTTAAGAGTAATGAT
AATTATTAATCTATGAAATAAAAAAGTGGATTAAATTAAGAGATC

FIGURE 29

Rat 29x protein

ARLPAPEHARQPLLSGPEPGSSARVPVPGVASRRQPRGGKPPSGDGLSEGPSRPLHARGEAGLHRQSGRVPHTGAY
FADEPTAQAPGGFCVPSLLGLVRWPACATRTPGSLPLSPPSAQPTLWPTPPAGPSSRMVARNQVADNAISPASEPRR
RPEPSSSSSSSSPAAPARPRCPVVPAPAPGDTHERTFRSHSDYRRITRTSALLDACGFYWGPLSVHGAHERLRAEPVGT
FLVRDSRORNFFAI.SVKMASGPTSIRVHFOAGRFLDGSRETFDCLFELLEHYVAAPRMLGAPLRRRVRPLQELCRQ
RIVAAGVRENLRILPLNPVLRDYLSSFFPQI

Rat 29x DNA (coding: 433-1071)

GCACGGTCTCCGGCCCCGGAGCATGGCGACAGCAGCCCTCTCTCTCCGGCCCTGAGCCCGGATCGTCCGCCCGGGTTCC
AGTTCCCGGGCTGGCAGTAGGCGGGCAGCGCGAGGGGCAAGCCACCCAGCGGGGACGGCCTGGAGTCGGGCCCTCTC
CAAGCCCCCTTCTCCACGCGCGGGGAGGCAGGGCTCCACCGCCAGTCTGGAAGGGTTCCACATACAGGAACGGCCTAC
TTCCGAGATGAGCCACCGAGGCTCAGGCTCCGGGCGGATTCTGCGTGTACCCCTCGCTCTTGGGGTCCGCTGGCCGGC
CTGTCCCTCAGCGGACGCGCGGCTCACTGCTCTGCTCCCCCATCAGCGCAGCCCCGGAGCTATGGCCCCACCCCTCAG
CTGCCCTCTGAGTAGGATGGTACGACGTAACAGGTGGCAGCGGACAATGGATCTCCCCGGCATCAGAGCCCCGACGG
CGCGCAGAGCCATCTCTGCTCTGCTTCTGCTCTCGCGCGGCGCCCGCGCTCCCGGCCCTCGCCGGTGGTCCGGG
CCCGGCTCGGGCGACACTUACTTCCGACCTTCCGCTCCACTCTGATTACGGCGCATCACGGGACAGCGCTCTCC
TGGACCGCTGGCGTTCTACTGGGACCCCTGAGCGTGCATGGGGCGCAGGAACGGCTGCGTGGCGAGCCGCTGGGAC
TTCTTGGTGCGGACAGTCCCGACGGAAGTCTTCTTCCGCGCTCAGCGTGAAGATGGCTTCCGGCCCCACGAGCATTCG
TGTGCACTTCCAGCCCGGCCCTTCCACTGGACGGAGCGCGGAGACTTGGACTGCTCTTCCAGCTGCTGGAGCACT
ACGTGGCGGGCGCGCTGCGCATGTTGGGGGCGCCACTGSCCAGCGCCGCTCGCGCCGCTGCGGAGCTGTGTCCGCGAR
CGCATCTGCGCGCGCTGGGTCCCGAAGCACTGGCAGCTCCCTCTTAACCGGTACTCCGTGACTACCTGAGTCTCTT
CCCCCTCAGACTCAGCGGCTCGCGCGCTGGCGCGTGGCGCAGATTAGTGGGAGCGCTTATTATTCTTATTATTAAATT
ATTATTTTTCTGGAACACGTGGGAGCCCTCCCGGCTAGGTCCGAGGAGTGGTGTGGAGGGTGGAGTCCCTCCCACT
TCTGGCTGGAGACCTTATCCGCGCTCTCGGGGGGCTCCCTCTCTGGTGTCTCCCTCCCGGCTCCCCCTGGTGTGACAGCT
TGTGTCTGGGGCAGGACTGAACCTCCAGGCTACCTCTCCATGTTTACATGTTCCAGTATCTTTGCACAAACAGGGG
TGGGGGAGGGTCTCTGGCTTCATTTTCTGCTGTGCAGATATCTATTTTATATTTTACATCCAGTTTAGATAATAAA
CTTTATTATGAAGTTTTTTTTTAAAGAAAAAAAAAAAAAAAAAAAA

FIGURE 30

Rat 25r DNA (coding 130...)

GGCACGGCTCCCGGCCCCGGAGCATGGGCGACAGCAGCCCCGGAACCCCGAGCGCGCGCCCGCGGTCCCGCGGACAGC
 GCAGCCCCGGAGCTATGGCCCAACCCCTCCAGCTGGCCCCCTCGAGTAGGATGGTAGCAGTAACCAAGTGGGAGCGGACA
 ATGGGATCTCCCGGACATCAGAGCCCCGACGGGGGACAGAGCCATCTCTGCTCTCTGCTCTCGCTCTCGCGGCGCGCCCCG
 GCGCGTCCCGGGGCTGCCCGGTGGTCCCGGCCCGGGCTCCGGGGGACACTCACTTCGGCACTTCCGCTCCCACTCTGA
 TTACCGGGCATCAGCGGACACAGCGCTCTCTGAGCGCTCGGGCTTCTACTGGGAGCCCTCAGCGTGCATGGGGCGG
 ACGAACGGCTGGTGGCGAGCCCGTGGGCACCTTCTTGGTGGCGGACAGTCGCCAGCGGAACCTGCTTCTTCGCGCTCAGC
 GTCAGATGGCTCCCGCCCCACAGCATTCGCTGCACTTCAGGCGCGCGCTTCACCTGGAGCGGAGCGCGGAGAC
 CTTGCACTGGCTCTTCGAGCTGCTGGAGCACTACGTGGCGGCGCGCGCCGATGTTGGGGGCCCCACTGGCGCAGCGCG
 GCGTGGCGCGCTGCGAGAGCTGTGTCGCCAGCGCATCGTGGCGCGCTGGGTCCGCAAGACCTGGCACGCATCCCTCTT
 AACCCGGTACTCCGTGACTACCTGAGTTCTTCCCTTCCAGATCTGACCGGTGCCGCGTGGCGGAGCATTAACTGG
 GAGCGCTTATTATTCTTATTATTAAATTATTATTATTTCTGGAAACACGTGGGAGCCCTCCCGGCTAGGTGGGAGG
 GAGTGGGTGTGGAGGTGAGATGCTCCCACTTCTGGCTGGAGACCTTATCCCGCTCTCGGGGGGCTCCCTCTCTGTT
 GCTCCCTCCCGGTCCCTCTGTTGTAGCAGCTTGTCTGGGCGCAGGACCTGAACCTCACGCGCTACCTCTCCATGTTTA
 CATGTTCCCACTATCTTGCACAAACAGGGGTGGGGAGGGTCTCTGGCTTCATTTTCTGCTGJGCAAAATATTCTAT
 TTTATATTTTACATCCAGTTTAGATAATAAACTTTATTATGAAAGTTTTTTTTTAAAAAAAAAAAAAAAAAAAA

FIGURE 31

Rat 5p protein:
MPSQMEHAMETMMLTPRRFAGEKNLYREDLRVLMEFEFGFLENQKDFLAVDKIMKDLLEKRDGKVGFSFLSLVAGLI
IAQNDYFVVMKQKK

Rat 5p DNA (coding: 52-339)
CTTCCAAGACTGCAGCGCCTCAGGGCCCAGGTTTCAACAGATTCTTCAAAATGCCATCCCAAATGGAGCATG/CATGGA
AACCATGATGCTTACATTTACAGGTTTGACAGGGGAAAAAACTACTTGACAAAGGAGGACCTGAGAGTGCTCATGGAAA
CCGAGTTCCCTCCCTTTTGCANATCAAAAGCAGCCTCTCCCTCTCCGCAAAATATCAAGACCTCCAGCACTGCCA
GATGGAAAAGTGGGCTTCAGAGCTTTCTATCACTAGTGGCGGGGCTCATCATTGCATGCAATGACTATTTGTAGTACA
CATGAAGCAGAAGAAGTAGGCCAAGTGGAGCCCTGGTACCCACACCTTGATGCGTCTCTCCATGGGGTCAACTGAGGA
ATCTGCCCCACTGTTCTGTGACGAGATCAGGACCTTAGGAAATGTGCAATAACATCCAATCCAATTCGACAAGCA
GAGAAAGAAAAGTTAATCCAATGACAGAGGAGCTTTCGAGTTTATATTGTTTGCATCCGGTTGCCCTCAATAAAGAAAG
TCTTTTTTTTTAAGTTCGAAAAA

FIGURE 32

Rat 7q protein

MAYAVLFKYIIIGDTGVKSCLLLOFTDKRFQPVWDLTISVEFGARMITIDGKQIKLQIWDTAGQESFRSITRSYYRGAA
GALLVYDITHRDFTFNHLTTWLEDARQHSNSNMVIMLIGNKSDLESRRREVNKEEGEAFAREHGLIFMETSAKTASNVEEAF
INTAKEIYERIQEGVFDINNEANGIKIGPQHAATNASHGNGGGQAGGGCC

Rat 7q DNA (coding 1-639)

ATGGCGTACGCCTATCTCTTCAAGTACATCATCATCGGCGACACAGGTGTTGGTAAATCGTGCTTATTGCTACAGTTTAC
AGACAAGAGGTTTCAGCCGGTGCATGACCTCACAATTGGGTAGAGTTTGGTGCTCGAATGATAACCAATTGATGGGAAAC
AGATAAAATCCAGATCTGGGATACAGCAGGAGGAGTCTTTTGGTTCATCACAAAGTTCATATTACAGAGGTGCAGCG
GGGCGCTTTACTAGTGTATGATATTACAAGGAGAGACAGCTTCAACCACTTGACAACTGGTTAGAGAGCGCCCGTCAGCA
TTCCAATTCCAACATGGTCATCTGCTTATTGGAATAAAAGTGACTTAGAATCTAGGAGAGAAGTGAAAAGGAAGAAG
GTGAAGCTTTTGCACGAGAGCATGGACTTATCTTCATGGAACCTCTGCCAAGACTGCTTCTAATGTAGAGGAGGCATTT
ATTAAACACAGCAAAAGAAATTTATGAAAAAATCCAAGAAAGGGTCTTTGACATTAAATAGAGGCAACGGCATCAAAAT
TGGCCCTCAGCATGCTGCTACCAATGCATCTCACGGAGGCCACCAAGAGGGCACAGGCAGGGGGAGGCTGCTGCTGA

FIGURE 33

Rat 19r protein

MVLLKEYRVILFVSVDEYQVGGQLYSVAEASKNETGGGEGVEVLVNEPEYKDDGERKQYTHKIYHLQSKVPTFVRLAPEG
ALNIHEKAWNAYFYCRTVITNEYMKEDFLIKIETWHKPDLGTEQNVHKLEFEAWKHVEAIYID:ADRSQVLSKDYKAEED
PAKFKSIKTGRGFLGPNWKQELVNQKDCPYMCAYKLVTVKFKWGLQNKVENFIHKQEKRLFTNFHRQLFCWLKWKVDLT
MDDIRRMEETKRQLDEMRRQKDPVKGMTADD

Rat 19r DNA (coding 1-816)

ATGGTGCTGCTCAAGGAATATCGGGTCATCCTGCTGCTGCTGTAGATGAGTATCAAGTGGGGCAGCTGTACTCTGTGGC
TGAAAGCCAGTAAAAATGAACTGGTGGTGGGGAAGGTGTGGAGGTCTGGTGAACGAGCCCTACGAGAAGGATGATGGCG
AGAAAGGCCAGTACACACACAAGATCTACCACTTACAGAGCAAGTTCCACGTTTGTTCGAATGCTGGCCCCAGAAGGC
GCCCTGAATATACATGAGAAAGCCTGGAATGCCTACCCCTTACTGCAGAACCGTTATTACAAATGAGTACATGAAGGAAGA
CTTTCTCATTTAAATGAAACCTGGCAACAGCCAGACCTTGGCACCCAGGAGAAATGTGCATAAACTGGAGCCTGAGGCAT
GGAAACATGTGGAAGCTATATATATAGACATCGCTGATCGAAGCCAACTTAGCAAGGATTACAAGGCAGAGGAAGAC
CCAGCAAAATTTAAATCTATCAAAACAGGACGAGGACCAITGGGCCCGAATTGGAAGCAAGAACTGTCAATCAGAAGGA
CTGCCCATATATGTGTGCATACAAACTGGTTACTGTCAAGTTCAGTGGTGGGGCTTGCAAGAACAAAGTGGAAACCTTTA
TACATAAGCAAGAGAAGCGTCTGTTTACAAACTTTACAGGCAGCTGTTCTGTTGGCTTGATAAATGGGTTGATCTGACT
ATGGATGACATTCCGAGGATGGAAGAACAGACGAAGAGACAGCTGGATGAGATGAGACAAAAGGACCCCGTGAAGGAAT
GACAGCAGATGACTAG

FIGURE 34

[illegible]

MNLEGLEMI^{AV}LVIVLVKLE^QGLIEAGLEDSVEDELEMATV^{RR}HRPEALELLEAQSKFTKELQILYRGFKNECPSG
 VNEETFEK^EIYSQFFPGQDSTTYAHFLN^AFDTHNGAVSFEDFIKGLSILLRGTVQEKLNWAFNL^YDINKDGYITKEEM
 LDIMKAIYDMGKCTYPVLKEDAPROHVETFEOKMDKNKG^VVTIDEFIESCQKDENIMRSMOLFENVI.

Monkey KchlP44 (J18K015b10) DNA sequence (10364 bp)

GTGAGACAGAGCCGTTGGCCGGTGGACCTCTGATGTTTATATATGAGCTCTGCTCCCAACACATGAATTAAGAGAGAGT
GGAAAGGATTTCGGTTCAGCTGAGGAGGCGCAGCTACAGAGCGGTTTCTATATCTCAGAACACACACAGAGCAGAT
TTAAAGAGCGGCTCATGAGGCTCTGGCCCTGCTCAGCTGGCAAAACATCTCTCCCTGCTATTCAAAGACACGCTGGAGAGT
GAGTGGAGAGAGAGCTGATGAGAGCTGAGAGCGCTTGGAGAGCGCAGGCAAAATTTACCAAAAGAC
GCTTCAGATCCTTTACAGAGAGATTGAAGACGAATGCCCGAGTGGTCTTATATGAGAGACCTTCAAGAGAGATTACT
GCGAGTTCTTTACAGAGGAGACTCTACAGACATATGCCACATTTCTGTTCAATGCGTTTGATACGGACACAGATGGAGCT
GTGAGTTTGAGGAGTTTCATCAAGGCTCTTTCCATTTTGTCTCGGGGGACAGTACAGAGAACTCAATTGGGCCATTTAA
TCTGTATGATATAAATTAAGATGCTACATCACTAAAGAGAGAAATCTTATATATGAGAGCAATATACGACATGATGG
GTAAATGTATATATCTGCTCCTCAAGAGAGATGACCCAGACACACAGCTGAAACATTTTTCAGAAATGGACAAAAAT
AAAGATGGGCTTGTACCATAGATGAGTTCATTGAAAGCTGCCAAAAAGATGAAACATATATGGCGCTCCATGGAGCTCTT
TGAAATGTGATTTAACTTGTCACTAGATCCTGAATCCAACAGACAAATGTGAACATTTCTACCCACCTTAAAGTGGGA
GCTACCACTTTTAGCATAGATTGCTCAGCTTGACACTGAAGACATATTATGCAAAAGCTTTGTTTAAATATAAGAGCAAT
CCCCAAAAGATTGAGTTTCTCAGTTATAAATTTGCATCCTTTCCATTAATGCCACTGAGTTCATGGGATGTTCTGACTCA
TTTCATACCTCTGGAATATTCAAAGTAAATAGAATCTGGGATATAGTTTATTTGATTCTTACCATGGGATATAGAGG
CTTTCCACATATCAGTGATTTAAAAATACCACTGTTTTTTGCTACTCAATTTGATGTATTCAGCTCTAGGATTTTGAATGG
TTTTCTAATATACATGACATCTGCATTTAATTTCCAGAAATTAATTAATTTTCATCTCAGTCTGTAATTCATTTAT
ATACTTTAAATAAACAATAAGATTACTACAATTAACACATTAATTAATTAATTAATTAATTAATTAATTAATTAATTAAT
TAGAATTAATTTATCTGTGATTTTAAACATTTAAAAATTTATGATCAGATATGAGATATGAGATATGAGATATGAGATAT
GAGACTAATTAAGCATTTAATTTCCATCATACATTAATTAATGAGAGCTATATATATATTAATTTTGATTTGTTTAA
TCTTACAGAGCTCTTTTCCATGTATCATCAAGTGGAGTTTAAAGAGGCTCAAAAGAGGATGTTTACAGACATA
TCCAAAGGCTGAGGATATCTATCTCCAGTATATGTTAATGTTTAAATACAGATTAATCTTACAGGATTTAAAGGCAAA
CTGCTCCTCTTTCCCTGACTTCTTACAGCATGTTTATATTACAAGCAATTCAGGACAAAGAGCACTTCACTACCCAA
TGCTACTAGGACAAACACAGCAGCAAAATTCACCTTGAAGGACAGTGGTTCCATTACATTAAGCAATTAATTAATTAAT
AAGATTACAGTGAAGAAATAGTGCTCAACACTAATCCAGATTACATATGATTAGTGCATCATAAAATCCAACATTC
AGATTATTTTAACTCACTCAGCCCACTGTAAAGTTGCCACATTACTAAAGACACACATATGTCCTGCTTTGTGAGA
AATATCAAAAGACCAAGAGGCTACAGAAGGAGAAATTTGCACCTGCTTTGCAACAAATAATCAGGTATCTATTCTGG
TGTAGAGATAGGATGTTGAAGCTGCCCTGCTATCACCAGTGTAGAAATTAAGAGTAGTACAATCATGTACATGAAAT
TTGCCATCGGCTGTTTGTAAACTCAATGTGCACATTTGTTATTTCAAAGAGAAAAATAAAGCAAAATAAATGTTA
AAAAAAAAAAAAAAAA

Monkey KchlP44 protein sequence

MNVRVESISQALEPASSTGGFLYQNSTKRSIKERLMKLLPCSAKTSSTPAINQNSVEDELEMATVRRHPEALELLEAQS
KTTKKEQLIYRGFKNECPSGVNEETFKELYSQFFQGDSTTYAHLFNAFDTHNGAVSFEDFIKGLSILLRGTVQEK
LNWAFNLYNDKNGYITKEMLDINKAIYDMKMKCTYVPLEKDAFGRHVETFFQKMDKNKDGVVYIDFIESQKQENIM
RSMQLFENVL

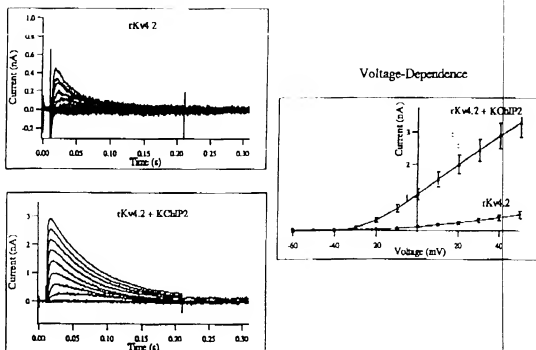
FIGURE 36

[illegible]

Decoration "Decoration #1": Shade (with solid black) residues that differ from EC01P4M1

FIGURE 37

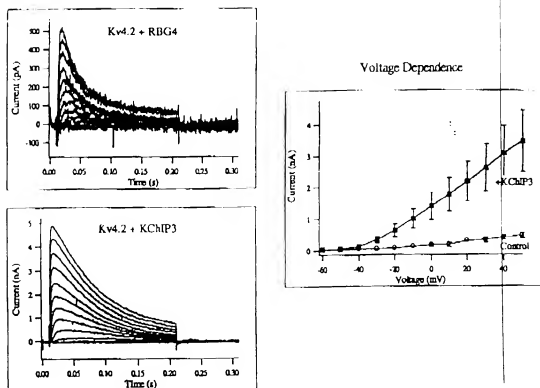
KChIP2 Expression Alters Kv4.2 Current



Current Parameter	CHO	
	rKv4.2	rKv4.2 + KChIP2
Peak Current (nA/cell, at 50 mV)	0.51 ± 0.098	3.3 ± 0.45
Peak Current Density (pA/pF, at 50 mV)	18.6 ± 2.8	196.6 ± 26.6
Inactivation time constant (ms, at 50 mV)	28.47 ± 3.5	95.14 ± 8.3
Recovery from Inactivation time constant (ms, at -80 mV)	257.9	49.5
Activation $V_{1/2}$ (mV)	20.5	-2.2
Steady-state Inactivation $V_{1/2}$ (mV)	-47.1	-45.7

FIGURE 38

KChIP3 Expression Alters Kv4.2 Current



Current Parameter	CHO	
	rKv4.2 +RBG4	rKv4.2 +KChIP3
Peak Current (nA/cell, at 50 mV)	0.46 ± 0.084	3.5 ± 0.99
Peak Current Density (pA/pF, at 50 mV)	29.7 ± 11.2	161.7 ± 21.8
Inactivation time constant (ms, at 50 mV)	29.5 ± 9.5	67.2 ± 14.1
Recovery from Inactivation time constant (ms, at -80 mV)	435.9	130.8
Activation $V_{1/2}$ (mV)	4.1	6.1

FIGURE 39

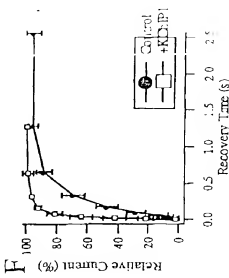
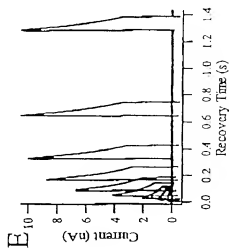
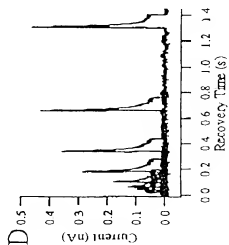
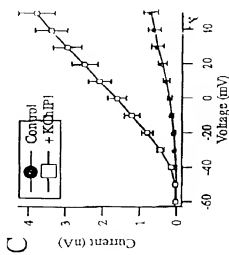
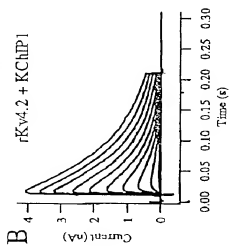
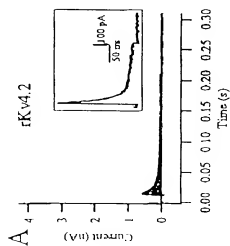


FIGURE 40

